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The JOURNAL
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THE DIAGNOSIS AND TREATMENT OF THE VITAMIN DEFICIENCIES*

LEWELLYS F. BARKER, M.D.,
Baltimore, Maryland

It is not easy for the general practitioner or even the expert in nutritional disorders to keep pace with the advancement in knowledge concerning the diseases in which vitamins play a rôle, for it has been estimated that, on the average, at least three articles upon vitamins appear daily in American and foreign publications. The most omnivorous reader could scarcely hope to peruse everything that has been written upon the vitamins. Fortunately many excellent collective reviews exist, making this unnecessary. The vitamins, as you know, have been designated under letters of the alphabet, A, B, C, etc., but there are not enough letters in the alphabet to designate all the vitamins now known, so that a single letter has often been used to designate several vitamins. Under the letter B more than half a dozen vitamins have been included (B₁, B₂, B₃, B₄, B₅, B₆, etc.) and under the letter D ten or more vitamins belonging to the D group have been described. Many of the vitamins are as yet of no interest for human pathology although they are concerned in various diseases of animals and plants. In the present address I intend to confine my comments to the vitamin disorders that are of interest to general practitioners of medicine.

HISTORICAL NOTE

The word "vitamine" was introduced in 1912 by Funk to designate a hypothetic element in food that will prevent beriberi. Funk coined this word to indicate first, that the food element was essential for life ("vita"); and second, that it was probably an "amine" chemically. It was afterwards shown, however, that the substance concerned in preventing beriberi is not an amine so the terminal letter has been omitted and the word "vitamin" has been retained.

Over 200 years ago it became known that scurvy (common among sailors on long voyages) could be prevented or cured by including green vegetables or fruit juices in the diet. Some 57 years ago it was discovered in the Japanese navy that beriberi (a disease known in China as early as 2600 B.C.) could be cured by increasing vegetables, fish, and meat in the diet and by using barley in place of polished rice. Rickets, in the last quarter of the nineteenth century, was thought to be due to some dietary deficiency although proof of this fact was not brought until later.

Experimental work on animals by Dutch investigators (1890-1906) showed that birds fed on polished rice developed symptoms which resembled those of beriberi, but that the animals recovered if they were fed upon unmilled rice or if bran was added to the diet of polished rice. It thus became clear that rice polishings and bran contained something that would prevent beriberi. It was further found that this antiberiberi substance could be extracted by water or by alcohol and that it was dialyzable; it could, therefore, be neither a protein nor a fat. In 1907 Norwegian investigators tried to produce beriberi experimentally in guinea pigs, but these animals when fed upon an unbalanced cereal diet developed scurvy, rather than beriberi; hence the Norwegians concluded that scurvy must also be due to some similar dietary deficiency. In 1912 the English investigator Hopkins emphasized the idea that natural foods must contain small amounts of some hitherto unknown substances that are necessary for life; and they must, he thought, be something other than proteins, carbohydrates, fats, mineral salts or water. In the same year, besides introducing the word "vitamin", Funk had advanced the hypothesis that there were at least four different varieties of vitamins, one that would prevent beriberi, one that would prevent scurvy, one that would prevent rickets and one that would prevent pellagra—a truly brilliant theory promulgated by an arm-chair scientist rather than by an experimenter, as a result of his study of evidence and

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his discernment of a possible common connecting link!

From 1888 on, another series of experiments along somewhat different lines threw a flood of light upon the dark subject of dietary deficiencies. In the first place it was shown that animals fed on so-called synthetic or artificial diets composed of purified proteins, carbohydrates, fats, salts and water did not thrive and would ultimately die. This was not due to monotony of the diet, to lack of flavor or to non-absorption. In the second place it was proved that natural diets subjected to extraction by a mixture of alcohol and ether could not support life, although if the extracted substances were replaced in the diet the animals would live. These "accessory factors", absent from extracted natural diets, as well as from the synthetic (artificial) diets, were thus seen to be of vital importance. It was also shown that small amounts of milk (or extracts of milk or yeast) added to the synthetic diets were protective to the life and growth of rats fed on such diets. Some thought that the growth factor might be in butter only; others thought it might be in yeast only; but in 1915 the American investigators McCollum and Davis showed that rats could be saved neither by butter alone nor by yeast alone; they required both. These authors suggested that the factor in fats like butter or egg-yolk be called "fat-soluble A" and that the factor in certain aqueous extracts of food substances or of yeast be called "water-soluble B". It was found that lard and olive oil contained none of the A factor and that polished rice, sugar and casein contained none of the B factor, although the latter was present in wheat and egg-yolk and in the watery part of milk. Accepting Funk's terminology, the fat-soluble A factor and the water-soluble B factor were called Vitamins A and B respectively.

Since 1915 intensive research has rapidly added to our knowledge of the vitamins. A water-soluble factor that would cure scurvy was found in various foods; it differed from the antiberiberi factor and was called "water-soluble C" and later Vitamin C. Subsequently it was shown that in addition to the fat-soluble factor called A which promoted growth in rats, another fat-soluble factor prevented rickets. Both these fat-soluble factors are present in cod liver oil but the former is destroyed when hot air is blown through the oil, whereas the latter is not. The antirachitic factor was called Vitamin D and eventually became divided into several factors. Further study of the water-soluble factor B showed that in addition to the antiberiberi or antineuritic factor, other factors were present in it, including a pellagra-pre-

ventive (or P-P) factor. Therefore, the antiberiberi factor was called Vitamin B₁ and the pellagra-preventive factor was designated as Vitamin G or Vitamin B₂. Later, other B vitamins were separated from the B complex.

In 1922 Evans found a factor without which rats are incapable of reproduction. It differs from Vitamins A, B, C and D, and was first called X or the antisterility factor, but was later designated Vitamin E. Since then a coagulation vitamin (K), a permeability vitamin (P) and a number of other vitamins have been added. Great strides have been made during the last few years in determining the sources of the different vitamins, in devising methods for their assays, in studies of their chemical structure, in obtaining some of them in crystalline form, in finding methods of synthesizing them, in explaining their physiologic action, and in applying vitamin preparations to the treatment of disease.

CHEMISTRY OF THE VITAMINS

Gradually the exact structural formulas of many of the vitamins have become known and their relations to their precursors (or provitamins) determined.

Thus Vitamin A is an alcohol that can be obtained in crystalline form. Its main precursor in foods is the so-called beta-carotene, a complex hydrocarbon. A molecule of beta-carotene, after it is split in its middle and the elements of water are added, yields two molecules of pure Vitamin A. Carotene is present in certain green vegetables (spinach, cabbage, lettuce, Brussel's sprouts, green peas) and in certain yellow roots (carrots, artichokes, sweet potatoes). For the absorption and utilization of carotene in the human body the presence of bile acids is necessary in the intestines. In the sea, minute plants are eaten by shellfish, the latter are eaten by small fish, and the latter in turn are consumed by larger fish (cod, tuna, halibut and perch). This sequence accounts for the abundance of Vitamin A in fish liver oils.

The antiberiberi factor, or "antineurine", now known as Vitamin B₁ has been found chemically to be thiamin chloride, a crystalline base that is soluble in water, not in fat. It has been produced by artificial synthesis, is easily absorbed from the intestines and is excreted in the urine. Vitamin B₁ is not present in high concentration in any single article of diet although whole grain cereals, wheat embryo, bran and egg-yolk contain it, and some is present in whole wheat bread, beans, peas, nuts, liver, kidneys, heart and yeast.

The Vitamin B₂ complex has undergone careful study in recent years. As mentioned before, a pellagra-preventive factor was found to be present

in the water-soluble extracts that were first called Vitamin B. This pellagra-preventive factor has since been shown to be nicotinic acid. Another element in the B₂ complex is so-called riboflavin, which is also of some importance in human pathology.

Vitamin C which prevents scurvy was found in 1928 to be hexuronic acid. This was synthesized in 1933 and its structural formula was soon worked out. Later it was called ascorbic acid or cevitamic acid. Among the richer dietetic sources of Vitamin C are lemons, oranges, grapefruit, limes, tangerines, tomatoes, fresh strawberries, fresh peas and raw cabbage. If the vegetables are cooked at high temperatures (especially if soda is added to preserve the green color) much of the vitamin is destroyed. Milk contains some Vitamin C but meat, dried foods and most canned foods are devoid of it.

The fat-soluble Vitamin D which prevents rickets has been the subject of intensive chemical study. For a time there was considerable confusion with regard to the terminology of several compounds included under the general term Vitamin D. At least ten different forms are known but only three of them have great practical importance, namely calciferol (new) known as Vitamin D₂, a Vitamin D₃ that is formed in the human skin on exposure to sun or to other sources of ultraviolet rays, and Vitamin D₄ which is derived from the phytosterols of the plant kingdom and is present in irradiated rolled oats or other breakfast cereals. Ordinary diets contain relatively little Vitamin D although there is some in milk, butter, liver, egg-yolk, sardines, salmon and other fish. The presence of bile in the bowels seems to be essential for the proper absorption of Vitamin D from the intestines. Pure crystalline Vitamin D₂ is of amazing potency. It is 400,000 times as powerful as cod liver oil and one ounce of it is enough to supply the daily need of over 1,000,000 children. One millionth of a milligram daily will prevent rickets in a rat.

Vitamin E, the antisterility vitamin, is an alcohol (alphatocopherol) which has been produced synthetically. It is abundant in wheat-germ oil.

Vitamin K, the antihemorrhagic or coagulation vitamin, is important for blood coagulation. It is probably a constituent of prothrombin. Foods that contain it include hog's liver, egg-yolk, cabbage, spinach and tomato. It is abundant in the alfalfa leaf meal, but it can now be made synthetically as a naphtha quinine compound, and certain laboratories are producing it by the pound. A dose of one milligram daily of the pure vitamin suffices for an adult, half of one milligram for a baby.

Vitamin P, the permeability vitamin, seems to be a glucoside (citrin). This vitamin affects the permeability of the vessel walls; lack of it has been found to be responsible for certain vascular purpuras.

VITAMIN UNITS

International standards for measuring the activity of vitamins and the substances containing them have been adopted, the biologic activity of a certain weight of the substance being accepted as the unit of activity. The standard preparations are held by the National Institute for Medical Research in London.

HUMAN VITAMIN A DEFICIENCIES

The minimum daily requirement of Vitamin A (antixerotic vitamin) for an average man weighing 70 kilograms is from 3,000 to 3,800 international units. During pregnancy and lactation a woman requires some 9,000 units daily. The average infant needs 2,000 units daily (contained in 750 milliliters of breast milk); if the infant is fed on cow's milk this should be supplemented with percomorph oil, halibut liver oil or cod liver oil. A teaspoonful of cod liver oil supplies 8,000 units or more; a teaspoonful of halibut liver oil supplies over 17,000 units. Percomorph oil is very rich in both Vitamin A and Vitamin D; a few drops will supply adequate amounts of both for human nutrition.

Xerophthalmia and Keratomalacia. These specific changes in the eyes are now known to be due to severe deficiency of Vitamin A. In infantile xerophthalmia the clinical signs usually appear first as local changes in the lateral and nasal parts of the conjunctiva in the form of small, white, dry rounded or triangular areas (Bitot's spots). Later the cornea becomes involved, a superficial and usually central epithelial turbidity appears and pericorneal hyperemia develops. Still later the cornea undergoes grayish discoloration and may become the seat of purulent infiltration leading to disintegration of the cornea (keratomalacia). In severe cases, panophthalmia develops with complete destruction of the eyeball. The affection is usually, but not always, bilateral and symmetrical. The speed of development varies, but may be very rapid, causing the loss of an eye within a few days. The mortality rate is high from secondary infections. Of the children who recover twenty-five per cent remain blind and another twenty-five per cent have diminution of vision. In 1917 when Denmark exported milk and butter to Germany some Danish babies did not receive enough Vitamin A and developed xerophthalmia. Even today a common cause of blindness in children in India, Spain, China, and the Malay states is lack

of Vitamin A. In Japan epidemics of xerophthalmia known as hikam have occurred.

Night Blindness. In older children and in adults the milder Vitamin A deficiency, known as essential or idiopathic hemeralopia (night blindness), may occur. The visual acuity in dim light is impaired and the quantitative color vision is markedly diminished (for blue more than red). When there is poor adaptation to the dark following exposure to brilliant light one should suspect deficiency of Vitamin A and make accurate tests for loss of adaptation to dim light. This form of hemeralopia due to lack of Vitamin A must be distinguished from the symptomatic hemeralopias that occur in retinitis pigmentosa, turbidities of the lens and turbidity of the vitreous. Hemeralopia due to lack of Vitamin A has a maximal incidence in late spring and early summer. It is said to be common in Labrador, Newfoundland, Brazil and China, but it may develop anywhere on diets deficient in Vitamin A. Epidemics of night blindness were described in 1887 as occurring among the orthodox Russians during their Lenten fast. Patients with hypothyroidism appear to be especially susceptible to lack of Vitamin A. It is interesting to note that night blindness was known to the ancients. Hippocrates had observed that it could be cured by eating ox liver. In animals the condition is known as "moon blindness". Recent studies indicate that subnormal dark adaptation is far more common than has been generally supposed and that night blindness may be responsible for automobile, airplane, and railway accidents, a matter of definite importance to traffic experts.

Hyperkeratosis of the hair follicle openings, susceptibility to infections of various sorts, and abnormalities of the teeth, especially of the enamel organs, may result from deficiency of Vitamin A.

HUMAN VITAMIN B DEFICIENCIES

Beriberi. This disease has been shown to be dependent upon a deficiency of Vitamin B₁ (thiamin chloride) in the diet. Before 1880 twenty-five to fifty per cent of the men in the Japanese navy were incapacitated by the disease known as kakke, but in 1883 Takaki, believing the disease to be of nutritional origin, obtained striking results from changes in the food rations of the navy. Beriberi occurs in two forms: first, the wet form in which there is multiple neuritis with edema; and second, the dry form in which there is multiple neuritis with atrophic paralyses without edema. As a member of the Johns Hopkins Medical Commission to the Philippine Islands in 1899 I saw many cases of the disease in Manila and in Cavite where polished rice was much used as food. Beriberi in the American army corps in the Philippines

was abolished by the use of unpolished rice and beans in the diet. However, beriberi may develop in other than rice-eating populations when white bread is used to the exclusion of brown bread or whole meal bread, or when for any reason insufficient amounts of foods containing Vitamin B₁ are ingested or absorbed. Adults normally require a daily intake of from 200 to 300 international units of Vitamin B₁; infants need about fifty units. Large doses may be given without danger when deficiency exists; a convenient form is pure thiamin chloride in one milligram tablets.

Beriberi Heart. Cardiovascular disturbances are so common in beriberi that they are often referred to as the beriberi heart. Many circulatory disturbances in the United States, especially palpitation and tachycardia with dyspnea, may be due to Vitamin B₁ deficiency. In such cases the response to five milligrams of thiamin chloride, given from one to three times a day, may be dramatic.

Alcoholic Neuritis. The neuritis and cardiac disturbances encountered in cases of chronic alcoholism are now believed to be dependent, not upon the direct toxic action of alcohol upon the nerves, but upon a deficiency of Vitamin B₁. Alcoholic addicts are prone to eat meager amounts of food, and studies of the diets of alcoholic addicts who developed polyneuritis have shown that these diets were deficient in Vitamin B₁. The neuritis they develop is, therefore, in reality, a form of beriberi. Intragluteal injections of Vitamin B₁, 500 to 2,000 units daily, have yielded good results.

Other Vitamin B₁ Deficiencies. Severe anorexias without apparent cause, states of heightened metabolism during hyperthyroidism, forced exercise or prolonged fever, pregnancy and lactation, and states in which there has been an increased loss of Vitamin B₁ through excretory channels (marked diuresis and diarrhea), may be associated with Vitamin B₁ deficiency. It seems probable that the neuritis seen in pregnancy, in protracted infections, in pellagra and in certain other conditions may be due to thiamin deficiency. At any rate a trial of thiamin chloride therapy would be justified in almost any form of neuritis.

Pellagra. This disease is now known to depend upon a deficiency of the P-P factor of Vitamin B in the diet, namely nicotinic acid. Pellagra has been common in the southern United States, especially among the negroes and the poorer white people who live too exclusively upon a diet of three M's—maize-meal, molasses and meat (salt pork), all deficient in the P-P factor. Pellagra is common in Egypt, Italy and Rumania where maize is a

staple food. In the decade between 1920 and 1930 about 150,000 cases occurred yearly in the southern United States, the disease being especially prevalent in tobacco raising and cotton raising districts. Pellagra was responsible for 11,000 deaths in 1915, and even in 1930 there were 7,000 deaths in our country from this preventable disease. The symptoms have been summarized under the three D's—dermatitis, diarrhea and dementia. The skin lesions tend to be symmetrical (pellagra glove; pellagra shoe; butterfly wings on the face). Progressive dementia may develop in the later stages of the disease. In the treatment of pellagra, patients are given a full, well-balanced diet including milk, fresh lean meat, liver, whole egg, beet greens and spinach. Medication consists of five doses of 100 milligrams each of nicotinic acid daily by mouth, or from 50 to 80 milligrams by intravenous or intramuscular injections. (Spies). The effects are spectacular. The sore mouth and the diarrhea rapidly disappear, the appetite returns and the mental symptoms are improved. When there is an accompanying neuritis, synthetic thiamin chloride in large doses should also be given intravenously, because in such cases there is a mixed deficiency, lack of Vitamin B₁ as well as of nicotinic acid. The addition of powdered brewers' yeast or brewers' yeast tablets is a valuable adjunct to the diet. Pellagra is a serious problem in many state hospitals for the insane, but recently in these institutions nicotinic acid has proved to be a veritable boon. The duration of hospital residence has often been greatly shortened and the cost is relatively negligible. Physicians practicing in pellagra districts should watch for cases of "subclinical pellagra" in patients complaining of dizziness, depression, confusion, upset head and burning sensations. Many of these patients will be relieved of their symptoms in a few days by administrations of nicotinic acid. Recently nicotinic acid given in powder form before x-ray treatments has been found to be effective in the prevention of so-called "radiation sickness".

Cheilitis. Women on deficient diets (corn meal, cow peas, lard, casein and white bread with calcium carbonate, tomato juice, cod liver oil and iron), even when supplemented with Vitamin C, Vitamin B₁ and nicotinic acid, will develop so-called cheilitis beginning as pallor of the lips followed by maceration and transverse fissures. It is said that this cheilitis can be cured by the administration of synthetic crystalline riboflavin, (part of the B₂ complex); one or two milligrams daily for three to ten days followed later by 0.05 of a milligram daily per kilogram of body weight.

Hence this cheilitis is believed to be due to riboflavin deficiency (ariboflavinosis).

HUMAN VITAMIN C DEFICIENCIES

Scurvy. This disease, characterized by a peculiar form of hemorrhagic diathesis, is due to a deficiency in the diet of the antiscorbutic substance now known as ascorbic acid or cevitamic acid (Vitamin C). For a time it was believed that infantile scurvy (formerly called Barlow's disease) was a malady that differed essentially from the scurvy of adults, but later studies have shown that infantile and adult scurvy are in reality essentially one and the same disease, the differences having been found to depend upon conditions of growth and nutrition at different periods of life.

In manifest infantile scurvy the bony changes are most characteristic, hemorrhages in the gums or elsewhere occurring less often. The clinical picture is dominated by the extreme sensitiveness of the bones, especially the long bones of the lower extremities and the ribs. Any passive or active movement may cause severe pain. The child lies in the same position, motionless in bed as if paralyzed. In less outspoken cases, pain can be elicited by pressure on the bones: thus if the lower end of the femur is pressed upon by the examiner, the child may behave as if he had been painfully pricked, suddenly spreading the arms apart, elevating the shoulders and holding the legs high like a "jack-in-the-box." Local painful swellings appear, due to subperiosteal hemorrhages. These are most common over the femur and tibia but they may occur elsewhere, for example over the ribs or the skull. The sternum may be depressed, owing to softening of the rib cartilages. Petechiae often appear on the face, neck, shoulders and upper trunk although they are usually absent from the legs in children (whereas they are common in adult scurvy). X-ray changes in the bony structure in infantile scurvy are characteristic and of diagnostic value. Infantile scurvy is rare in the breast-fed child, but is common among those fed on condensed or malted milk and among bottle-fed babies who do not receive orange juice daily. Every artificially fed infant should ingest from 20 to 30 milligrams daily of Vitamin C in the form of orange juice or other fruit juices. It is interesting to note that infantile scurvy is more common in well-to-do families than among poorer people.

Scurvy in Older Children and in Adults. Here the disease is characterized clinically by bleeding and spongy gums, and by hemorrhages in the skin especially about the hair follicles, in the subcutaneous tissues and in the muscles of the

legs. Hemorrhages into the joints are far less common in adults than in infantile scurvy. Mild posthemorrhagic anemia may develop and irregular fever may be present. The clinical picture may vary greatly in different persons. In manifest scurvy the Vitamin C content of the blood plasma may fall to 0.2 milligram per cent or even lower, the normal being 0.76 to 1.3 milligram per cent. Throughout history epidemics of scurvy in adults were common on long sea voyages, in cities under siege, in closed institutions with faulty diets and in countries where famine or extreme poverty prevailed. During the World War epidemics occurred on all fronts among troops who had insufficient food rations. Occasionally scurvy develops among patients under treatment for gastric or duodenal ulcer or for ulcerative colitis from lack of Vitamin C in their restricted diets, or from poor absorption of the vitamin.

Latent Scurvy. Practitioners should look for latent scurvy when manifest scurvy is discovered anywhere in the patient's family or among his associates on the same kind of diet. In the latent state, complaints of rheumatic pains in the lower extremities, fatiguability, palpitation, cyanosis, irritability, and dryness and roughness of the skin with prominence of the hair follicles, should excite suspicion and lead to quantitative determination of the amount of Vitamin C in the blood plasma. If the latter is 0.26 milligram per cent or lower, one is dealing with latent scurvy. Such patients rapidly improve if they are given quantities of orange juice, lemon juice, fresh lime juice, fresh milk, meat and green vegetables. Incipient scurvy may be seen in chronic alcoholism and is especially common in the alcoholic psychoses. In advanced pulmonary tuberculosis, patients may require from five to ten times the normal amount of Vitamin C in the diet to maintain normal levels in the blood.

HUMAN VITAMIN D DEFICIENCIES

Rickets in Childhood. This metabolic disorder is characterized by pathologic changes in the bones. When it appears in sucklings it is known as the infantile form of rickets; if it originates or is revived in puberty it is called late rickets. When the infantile form persists beyond the second or third year, perhaps even until puberty, it is spoken of as rachitis inveterata.

In infantile rickets (that which appears during the third or fourth month), softening of the bones of the skull (craniotabes) is a prominent symptom, but in addition the frontal protuberances may be prominent and the occipital protuberances flattened. Sometimes the skull looks more or less cubi-

cal in shape. The upper jaw may be prominent and deformities of the alveolar processes of both jaws may prevent normal occlusion of the teeth. Next to the craniotabes the appearance of swellings at the junctions of the ribs with their cartilages is the most marked sign of early rickets. Furthermore, because of flattening of the softened ribs at the sides of the thorax and prominence of the sternum, the so-called pigeon breast appears as well as a transverse furrow (Harrison's groove), which passes laterally from the level of the ensiform cartilage to the axilla. The long bones of the extremities, especially those of the lower extremities, may undergo curvature, giving rise to knock knees or bowlegs. The x-ray examination shows striking bony changes.

In late rickets (juvenile rickets or rachitis tarda) the disease develops at puberty or during adolescence (twelfth to eighteenth year). This form was common in central Europe at the end of the World War because of the hunger blockade. The patients tire easily, and complain of pains in the knees and legs. So-called rheumatic pains occurring at this time of life should make the physician suspicious of late rickets.

Examinations of the blood in rickets of childhood may or may not show a diminution of the calcium content of the serum (the normal content is nine to eleven milligrams per cent), but there is always a marked diminution of the phosphates, the normal inorganic phosphorous of the serum, 4.5 to 5.0 milligrams per cent, being definitely reduced. One of the triumphs of modern medicine lies in the bringing of proof that ordinary rickets is due to Vitamin D deficiency either because of insufficient exposure of the skin to sunlight or to insufficient intake of the vitamin or its precursors in the diet. Although rickets is now definitely preventable we still see too many children with bowlegs and knock knees and other deformities due to it. These abnormalities should no longer be allowed to develop. In children exposed to sufficient sunlight, the ultraviolet rays synthesize Vitamin D in their skins in quantities large enough to prevent rickets, but during long dark winters and especially in industrial areas in which the ultraviolet rays of the sun are shut out by the smoke of factories, rickets tends to be prevalent. Diets containing enough Vitamin D will, however, prevent rickets even when the skin does not make enough of it through the action of sunlight. Eskimos live in dark huts where the long Arctic night may last for six months, but rickets does not often occur because the people normally live on foods rich in Vitamin D (fish; flesh of seals

and of other fish-eating animals and birds); but if they substitute our foods for theirs they develop rickets. On the other hand, the severity of rickets among children who live in the slums is often accentuated by the faulty diets they receive, especially sweet cheap condensed milk. In England and America a large proportion of our deficiently fed children still develop rickets. It is to be hoped that the disease may be eliminated by giving them cod liver oil or other fish liver oils like percomorph oil or, better still, concentrated Vitamin D (viosterol in oil) during the winter months, and by providing for exposure to sunlight or to rays from ultraviolet lamps. Child welfare associations can be most helpful in promoting these preventive measures.

The cure of rickets after it has developed requires Vitamin D to bring about rapid improvement. Infants should receive at least 1,200 units daily, but many children will require from 10,000 to 20,000 units daily or even more during the first month of treatment. When large doses of Vitamin D are given, the blood should be examined twice a week for its calcium and phosphorous content. If the serum calcium should rise above 12 milligram per cent there is danger, whereas as long as the calcium and phosphorous levels remain below normal one can feel sure that there will be no harmful effect from the Vitamin D administration.

Osteomalacia and Hunger Osteopathy. These relatively rare diseases of adults are due to Vitamin D deficiency and are equivalent to rickets of early life. They may be insidious in onset (vague rheumatic pains or progressive muscular weakness), but if they are suspected in pregnancy, during lactation or in persons on inadequate diets, analyses of the blood for calcium and phosphorous contents, and x-ray examinations of the bones will make the diagnosis clear. In India at one time the ovaries of the women were removed surgically to prevent osteomalacia. This measure was sometimes effective in that it prevented further pregnancies. The use of cod liver oil or viosterol would have been better. Social and religious customs in some countries confine women indoors and lead to osteomalacia because Vitamin D cannot be manufactured in the skin. The changed appearance of the lower extremities of some of these women may be very striking; they develop the so-called marmalade legs. During the postwar blockade in 1919, juvenile rickets and hunger osteopathy in adults were common in Germany and Austria. During this period the healing effect of actinotherapy (exposure to artificial ultraviolet rays) was discovered.

HUMAN VITAMIN E DEFICIENCY

Habitual Abortion. Although the studies of Vitamin E deficiency have been largely confined to rats and mice, reports of prevention of habitual abortion in cattle by the use of Vitamin E have been made, and the question arises as to whether or not repeated miscarriages in women can be similarly prevented. When the diet consists largely of white bread and is deprived of eggs and vegetables a deficiency of Vitamin E may easily occur. Several reports have recently been made of normal pregnancies after the use of Vitamin E (wheat germ oil) in women who had earlier experienced successive miscarriages, but further observations are necessary before we dare speak too positively about the significance of Vitamin E deficiencies as a common cause of habitual abortion in women. The dosage of wheat germ oil is from three to six cubic centimeters given by mouth as soon as pregnancy is recognized, especially when patients have suffered repeated miscarriages. The dosage may be continued throughout pregnancy.

HUMAN VITAMIN K DEFICIENCIES

Hemorrhages in Obstructive Jaundice and in Associated Biliary Fistula. Unless bile salts are present in the intestines, Vitamin K is not properly absorbed. Clinical observations in cases of jaundice and in biliary fistula indicate that the administration of concentrated Vitamin K, along with bile or bile salts, will increase the prothrombin level of the circulating blood and inhibit the tendency to hemorrhage. Intramuscular injections of Vitamin K have a similar effect. Surgeons operating for diseases of the biliary tract should ensure an abundant prothrombin activity of the blood by administering Vitamin K. Eastman and his associates at the Johns Hopkins Hospital have recently been giving Vitamin K to expectant mothers to lessen the incidence of hemorrhagic tendencies in newborn babies. It should be mentioned that Vitamin K is effective in preventing hemorrhages only when the prothrombin activity of the blood is diminished; it is of no value in purpura hemorrhagica or in hemophilia. Thanks to Ziffren, Owen, Hoffman and Smith, we now have a simple bedside thromboplastic test for determining the prothrombin activity of the blood.

HUMAN VITAMIN P DEFICIENCIES

Vascular Purpuras Dependent on Capillary Fragility. The use of Vitamin P in the form of citrin has been found to be effective in the treatment of Schönlein-Henoch purpura and of thrombocytopenic purpura, as well as in the treatment of various other disorders in which petechial hemorrhages occur.

CONCLUSIONS

Although only the more important forms of vitamin deficiency in human beings have been referred to in this address, enough has been said to indicate how essential this knowledge is for successful medical practice. However, when new and important discoveries are made there is always tendency to over-exploit them, and at the present time we see evidences of excessive enthusiasm regarding the use of vitamins. Radio broadcasts often carry announcements in which advertisers unjustifiably recommend the use of their products because of their supposed vitamin effects. Medical practitioners should guard against such abuses. The field for the legitimate use of vitamins in therapy is sufficiently large, but the indiscriminate use of vitamins in therapy is to be deprecated.

TREATMENT OF VARICOSE VEINS AT THE UNIVERSITY HOSPITALS*

GILBERT O. DEAN, M.D.
Iowa City

A recent survey of varicose veins at the University Hospitals revealed that the four following methods of treatment have been employed for several years.

1. Injection of sclerosing solutions.
2. Multiple excisions and some injections.
3. High saphenous ligation and some injections.
4. High saphenous ligation, multiple excisions, and some injections.

A five per cent solution of sodium morrhuate was used for nearly all of the injections. The multiple excisions consisted of the operative removal of short segments of the involved varicose veins. The high saphenous ligations were carried out flush with the femoral veins and included the ligation of all veins draining through the saphenous fossae. Many of the operative methods were supplemented with postoperative injections, but not all of the patients returned for the sclerosing of the residual varicosities. As a rule, the varicosities treated surgically were larger than those receiving only injection therapy. A comparative analysis of the results obtained with the four methods of treatment has been made in order to evaluate the efficiency and usefulness of each method.

Injection Treatment

Eighty per cent of the patients secured temporary improvement from the use of sclerosing solutions alone. Within two to five months following the injections, however, 32 per cent of the extremities began to show recurrence of the varicosities;

when observed six months or longer, 96 per cent developed recurrent varicosities. When observed for an average period of fourteen months, 47 per cent showed results which could be classified as improved (21 per cent being good or excellent). The remaining 53 per cent were unimproved. Fifty-two per cent of the chronic leg ulcers were healed by injection therapy alone.

Multiple Excisions and Some Injections

The varicose state was temporarily improved by multiple excisions and some injections in 88 per cent of the extremities. When observed for periods averaging nineteen months, 65 per cent of the extremities presented recurrent varicosities. At the end of the average period, 68 per cent were classified as improved (53 per cent being good or excellent), and 32 per cent were unimproved. Eighty per cent of the chronic leg ulcers were healed by the multiple excisions.

High Saphenous Ligation and Some Injections

Temporary improvement was obtained in 88 per cent of the extremities treated by high ligation and some injections. Forty-four per cent of the extremities showed a recurrence of some of the varicosities after an average period of ten months. The final results were classified as: improved, 78 per cent (67 per cent being good or excellent); unimproved, 22 per cent. All of the chronic leg ulcers in this group were healed.

High Saphenous Ligation, Multiple Excisions, and Some Injections

The varicosities were temporarily improved in 100 per cent of the patients in this group. Forty per cent of the extremities showed some recurrent varicosities when observed for an average period of over six months. The final results were classified as: improved, 80 per cent (60 per cent being good or excellent); unimproved, 20 per cent. All chronic leg ulcers in the group were healed.

The accompanying table gives the results with the four methods of therapy.

RESULTS OF THE FOUR METHODS OF THERAPY IN PERCENTAGES

	Temporarily Improved	Varices Recurred	Final Status		Ulcers Healed
			Improved	Unimproved	
Injection only	80	96	47	53	52
Multiple Excisions and Injections	88	65	68	32	80
High Ligation and Injections	88	44	78	22	100
High Ligation, Multiple Excisions and Injections	100	40	80	20	100

*Department of Surgery, College of Medicine, University of Iowa, Iowa City, Iowa.

DISCUSSION

The injection treatment alone is extremely valuable, but the results indicate a high percentage of recurrent varicosities and absolute failures. The operative treatment of varicose veins is an adjunct to the injection treatment. High saphenous ligation definitely increases the percentage of improved cases when used with either the injections or multiple excisions. The combined method of high saphenous ligation, multiple excisions, and injections offers the best hope of securing relief from extensive and progressively enlarging varicose veins. All methods of therapy have a certain percentage of failures which can be reduced by more careful selection of the cases for the indicated procedures.

COMPLICATIONS

Our experience has been that complications arise about as frequently with the injections as with the operative procedures. Some of the possible complications from the injection therapy are: pulmonary embolism, acute thrombophlebitis, local abscesses and sloughs, septicemia, toxic and allergic reactions, thrombosis of the deep veins, arterial occlusion, and nerve palsy. There have been two deaths from embolism at the University Hospitals following injection therapy. Several patients have developed severe thrombophlebitis, and one of these is now recovering from a streptococcal septicemia. A toxic hepatitis with jaundice was noted in one patient following the injections, and several have suffered transient allergic reactions. Three patients reported a generalized dermatitis. Many complications have been avoided by eliminating from treatment any patients with recent phlebitis, active phlebitis, or persistent obstruction of the deep veins.

Any of the above complications, except the toxic and allergic reactions, may arise with the operative procedures. At the University Hospitals, however, no deaths have resulted from any of the surgical procedures. Mild wound infections have occurred in several cases, and one patient developed erysipelas after multiple excisions had been done. Temporary paralysis of the peroneal nerve was observed in one extremity after a large communicating vein of the thigh had been excised. One patient entered the hospital with a dry gangrene of the foot and leg following a high saphenous ligation and simultaneous injury to the femoral artery; no similar accidents have occurred at the University Hospitals. As with the injection therapy care was exercised to eliminate all patients with phlebitis and deep venous obstruction.

CONCLUSIONS

1. The injection treatment should be reserved for very early cases with small varicosities and a negative Trendelenberg test.* The injections may be used as a procedure of second choice in patients who refuse to submit to the indicated surgery.

2. High saphenous ligation should be done whenever the saphenous vein is incompetent. One exception is a small incompetent short saphenous vein which may respond to the injections.

3. Multiple excisions should also be done whenever there are large saccular masses of varicosities along the saphenous veins or whenever there are secondary "blow out" points or incompetent communicating veins.

4. The injections should be used as a supplement to the operative procedures if there are any residual varicosities three to six weeks after the ligations and excisions.

5. No method can be expected to give 100 per cent cures, and no method is free of certain dangers and complications.

*Dean, G. O., and Dulin, J. W.: Treatment of varicose veins. *Arch. Surg.*, xxxix:711-719 (November) 1939.

AN OPERATION FOR UNUNITED FRACTURE OF THE NECK OF THE FEMUR

LEO J. MILTNER, M.D., F.A.C.S.*
Davenport, Iowa

The operation to be described has been found practicable in patients suffering from pain and instability of the hip joint due to old ununited fracture of the neck of the femur. The operation requires that the head of the femur be alive and that it show little or no absorption of aseptic necrosis. The procedure is relatively simple, easily performed, and the least shocking of all the reconstructive operations on the hip joint. It may be performed in approximately thirty minutes' time. Therefore, it may be the operation of choice in older patients, particularly those whose general condition might not be adequate to withstand extensive major operations such as those described by Albee, Whitman, Brackett, Magnuson, and others.

TECHNIC

A straight lateral incision approximately six to eight inches long is made through the skin and fascia lata and the greater trochanter, and the upper end of the shaft of the femur is exposed. At the lower end of the incision, the anterior half of the fascia lata is severed transversely to allow easier retraction of the soft tissues anterior to the

*From the Division of Orthopedic Surgery, Peking Union Medical College, Peking, China.

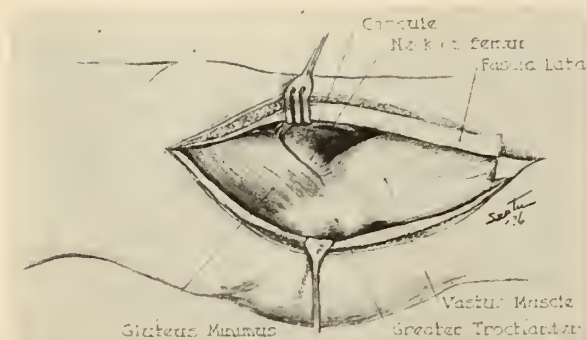


Fig. 1. Dissection of a cadaver showing the curved lateral incision over the greater trochanter and upper end of the shaft of the femur. Note that the fascia lata is severed transversely at the lower end of the wound.

hip joint. With the incision, the neck of the femur is brought into view. A longitudinal incision running parallel to the antero-inferior part of the neck is made through the joint capsule, then the capsule is also cut across transversely at the sub-capital level so that the antero-inferior portion of the head of the femur may be seen. If there is considerable upward displacement of the distal fragment the vastus muscle may be stripped from the upper end of the shaft in order to allow exposure of the inferior part of the head. An oblique osteotomy at an angle of forty to forty-five degrees is made through the shaft with the medial tip of the distal fragment on a level with the inferior surface of the head. A portion of the inferior part of the head of the femur is removed by means of a chisel and a curette. The thigh is abducted approximately forty-five to fifty-five degrees, and the proximal end of the distal frag-

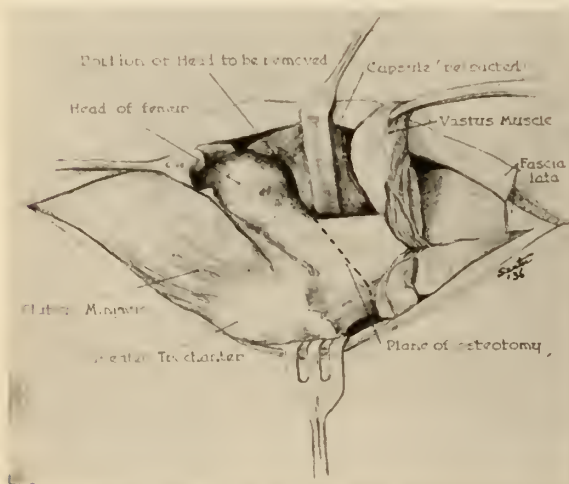


Fig. 2. Continuation of dissection from Fig. 1 showing incision through the anterior capsule of the hip joint and retraction to allow exposure of the anterior inferior surface of the head and neck of the femur. The dotted line represents the plane through which the osteotomy is to be made. Note that the dotted line extends through the inferior margin of the head of the femur. Also note the portion of the head to be removed.

ment is displaced medially *under and into the denuded surface of the head*. It is held in that position during closure of the wound and application of a plaster of paris hip spica. The cast is maintained for three to four weeks after which it is removed so that physiotherapeutic treatments may be instituted. Weight bearing with the aid of crutches is allowed as soon thereafter as the patient's strength allows.

COMMENT

The described operation is a modification of the Lorenz procedure. It has given good results in three cases. These cases have been observed post-operatively over a period of six, five, and three years, respectively. It differs from the Lorenz operation in that it is an intra-articular procedure,

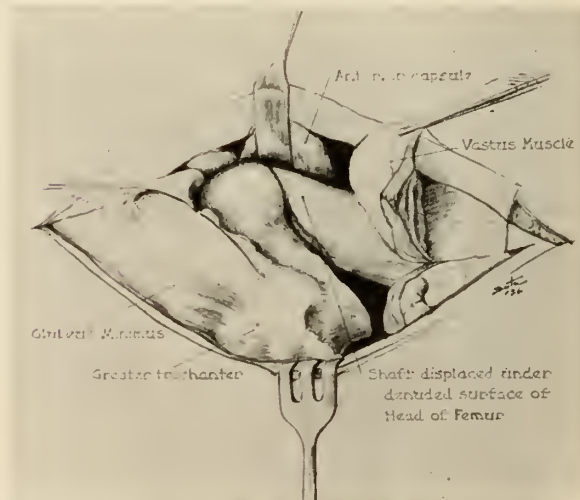


Fig. 3. This illustration shows the completed osteotomy. Note that the medial tip of the distal fragment has been displaced medially under and into the denuded surface of the head of the femur. The upper raw surface of the femur bridges the old fracture site. It is not necessary to set the trochanter down on the shaft.

whereas the Lorenz is extra-articular, and because a portion of the inferior part of the head of the femur is cut and curetted away to allow contact with the upper raw surface of the shaft fragment, a procedure which is not a part of the Lorenz operation. The illustrations (Figs. 1, 2 and 3) reproduced from a dissection of a cadaver are made through a wide opening in order that all the structures concerned may be visualized. The actual operation, however, is made through a smaller lateral approach and with less extensive dissection than that illustrated. In brief, the lateral approach used for this procedure is the same as that employed during nailing of a fracture of the neck of the femur.

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1009 Davenport Bank Building.

PRESIDENT'S ADDRESS*

MARTHA M. LINK, M.D.

Dubuque

When individuals unite to form an organization to promote their common interests they should chart their cause and keep it in line with those activities which will promote the general welfare of our nation. Especially is this true in a democracy where intelligent educated leadership is essential if the general welfare is to be maintained.

Keeping this thought before us, what can we as an intelligent, educated group contribute to society? As your elected president, it is my privilege to offer a few suggestions in the hope that they will open a discussion which will bring out your ideas and thoughts so that we may chart our cause and go forward.

The National Educational Association of the United States has set up the following objectives as the functions of public education:

1. Health training.
2. Vocational training.
3. Training for use of leisure time.
4. Command of fundamental processes.
5. Worthy home membership.
6. Training for citizenship and ethical character.

These are worthy purposes, and the fact that the educators have placed health training as the first function of the school, opens up a direct relationship between our organization and theirs.

Statistics show that preventable diseases cost more than one billion dollars yearly in the United States. The schools are organized to attain the purpose of turning out healthy citizens, but teachers are neither adequately trained nor equipped to carry on this much needed work alone. Therefore, would it not be a worthy cause for an organization to institute a program for more and better health services in our own state of Iowa; and if we succeed here in our efforts, would it not be a great movement to urge the associations

of women physicians in other states to do likewise? There is an urgent need for this type of program and it should come from the women who are physicians because we are the mothers of children. By nature we are adapted to this type of work, and by training we are qualified to assume a position of national leadership.

First, we should contribute, for free publication, a series of health articles dealing particularly with the problems of child health, to the state and national educational journals. This would be especially helpful to the teachers and pupils of our rural schools. The articles could be contributed to the *Midland Schools*, the state publication of the teachers of Iowa, the *Parent-Teachers Association Journal*, and the *Journal of the National Teachers Association*. Second, we could sponsor a free county clinic for children where our members could go through the schools and assist the teachers in finding preventable defects in children. Third, there is a definite need for more adult education. If we are to accomplish our purpose, we must secure the cooperation of the parents. This could be attained through the use of more health materials, such as moving pictures, which are available for free distribution. Our duties would be to secure the addresses of the sources from which they may be obtained, to select carefully those that are desirable, and to place our approval upon them. In addition, we should be prepared to give lectures with these pictures in our various cities. It is especially important to secure the cooperation of the county superintendents of schools so that these pictures and our talks may be presented to the rural schools of our state. The realization of the program will require certain equipment, and I would suggest that either this association purchase a portable moving picture machine, or that a bill be introduced in our state legislature requiring each county to purchase a machine for use in the public schools of Iowa. Fourth, your president would urge a series of radio broadcasts covering the field of child health. The last point in this program should be our support of the public health rural movement. This is a good movement in the right direction, but cooperation and education are required to make it function adequately.

The leadership of this type of work should be our responsibility; all activities should remain under our supervision. If we are interested in curtailing the demand of socialized medicine we can best do so by offering more and better health services under our own leadership. That there is an urgent need for our cooperation in this work is evidenced by a recent study which revealed that 80 per cent of heart disease in adult persons un-

*Presented before the Forty-second Annual Meeting of the State Society of Iowa Medical Women, Des Moines, April 25, 1939.

der forty years of age can be traced to rheumatic fever suffered during childhood. Another study made in the city of Providence, Rhode Island, by Dr. Charles V. Chaplin, showed that physical defects in children, such as infected teeth and diseased tonsils, often lead to heart disease. This study also demonstrates what can be done when the medical profession cooperates with the schools. In this particular city 88 per cent of the defects were adequately corrected.

In our own city of Dubuque the work accomplished by the city board of health, cooperating with the schools and the physicians of the city, speaks for itself. In 1858, 51 per cent of the children born in Dubuque were dead within ten years. With additional knowledge and the development of medical services this rate was reduced to 8.1 per cent in 1935. Between the years 1920 and 1927 the average number of cases of diphtheria in our city was 67.0, but in 1927 we immunized 4,000 children and from 1928 to 1933 there were only fourteen cases. By 1934, however, there were enough new children who had not previously been immunized, that the number of cases was thirty-nine. Another extensive immunization campaign was inaugurated and in 1937 there were only two cases.

Another example of the results obtained from cooperation between the schools and the doctors is in regard to smallpox. In 1920 there were 674 cases of this disease. Immunization of the children was done, and the effect carried over until 1931 when it was apparent that it was again time to vaccinate our children. Some opposition was encountered and the vaccination was postponed, with the result that there was a large number of cases in 1932 and 1933. In 1933 a ruling was made that no child would be admitted to school unless he had been vaccinated. This means proved effective, and there were no cases after 1933.

PUERPERAL INVERSION OF THE UTERUS*

E. J. BUTTERFIELD, M.D., Dallas Center

Inversion of the uterus following childbirth is the top ranking surprise of obstetrics. There is probably no other obstetric complication which will so suddenly and so thoroughly congeal the blood of the attending physician. There are two reasons for this. It is utterly unexpected, and his experience with this condition is so limited that it is practically *nil*. Either phase of the dilemma is paralyzing.

Fortunately, inversion of the uterus is so rare

that comparatively few obstetricians of wide experience have had to meet this unusual emergency. The incidence of inversion varies widely, in direct proportion to the optimism or pessimism of the investigator. It ranges from one case in 1,440 deliveries as estimated by Ferri and Lorini to one in 400,000 by Zangemeister's guess. Davis¹ records one in 65,000 cases; St. Petersburg Hospital reports no cases in 250,000 deliveries; Vienna Lying-In Hospital, one in 280,000; Phaneuf² one in 125,000; Brown did not see a case in 250,000 deliveries; in Dublin there was one case in 190,000 labors. Palmer Findley³ reviewed 1,932,164 cases of labor and reported only seventeen cases of inversion, or one in 113,656 deliveries. Inasmuch as many physicians are more interested in practicing medicine than they are in writing papers, the writer is inclined to believe that many cases have occurred, but have not been reported, or perhaps were classified in the death report as puerperal hemorrhage.

CASE REPORT

The patient, a primipara, thirty years of age, entered the hospital at 2:30 a. m. on August 4, 1938. Her pains had begun two hours previously. During the first few hours they seemed to be normal in character, but by 10:00 a. m. had become much weaker and seemed ineffectual. At 12:45, one minim of pituitrin stimulated the contractions for a short period, when they again became ineffectual. At 2:00 two minims of pituitrin were given but only a slight response occurred. The dose was repeated at 3:00 and again at 3:45. The pains became more vigorous and at 6:00 p. m. she was delivered by low forceps of a live baby.

The uterus was massaged by the interne, as usual. After a delay of fifteen minutes the placenta was expelled. However, there seemed to be something peculiar about the appearance of the placenta. Upon examination, we discovered that what at first glance appeared to be an abnormal placenta, was the inverted fundus of the uterus. We carefully detached the placenta which easily came away, and replaced the fundus by carefully turning it back as one would an inverted glove finger. The assistant assured me that the fundus had returned safely and was firmly contracted. There was considerable hemorrhage which we attempted to control by packing. Pituitrin and ergotrate were given and intravenous glucose injections were started. The husband was quickly typed and a transfusion given. In spite of the firmly contracted fundus the patient continued to bleed. Pituitrin and ergotrate were again administered, and another transfusion was given. Palpation of the uterus revealed a dimpling of the

*Presented before the Dallas-Guthrie Medical Society, Panora, Iowa.

fundus, which undoubtedly was responsible for the bleeding.

At 6:00 a. m. on August 5, an attempt was made to repack the uterus but the hemorrhage was so brisk that the patient almost died. A prompt transfusion restored her to consciousness. A surgical consultation was held and it was decided that a hysterectomy was necessary to save the patient's life. She was operated upon at 11:00 a. m. An attempt was made to replace the umbilication under anesthesia with a fist in the fundus, but it was impossible to reduce it. The patient was given another transfusion during the operation and her condition when she left the operating room appeared satisfactory.

There was very little subsequent shock. She received a few doses of prontosil to forestall infection and left the hospital on the twentieth post-operative day feeling fine. She received in all, six transfusions, to which undoubtedly she owes her life, plus the timely, though somewhat hazardous hysterectomy.

DISCUSSION

There are many theories regarding the cause of uterine inversion, none of which appears to be conclusive. The classical textbook etiology is faulty obstetric technic, including traction on the cord and too vigorous expression of the placenta; short cord, fundal implantation of the placenta and uterine tumors. If traction on the cord and manual expression are responsible for this freakish accident it seems strange that it does not occur more frequently, because surely most obstetricians are guilty of both of these pernicious practices at times, however virtuous they may pretend to be in their professional attitude. It does not seem likely that undue strength should be expended in one particular case to the exclusion of all others. Crompton says that the cord would break before a firmly contracted uterus would invert. Massage of the uterus is done in practically all cases of labor, so that procedure of itself does not seem to be a logical factor. The theory of a short cord seems absurd, inasmuch as inversion generally occurs after the cord has been cut. Submucous fibroids probably have an etiologic bearing in certain cases, but only a small percentage of the reported cases showed this pathology. Fundal implantation of the placenta may have something to do with inversion.

One constant condition in nearly all reports is uterine inertia. There seems to be a lack of muscle tone of the uterus. If the placenta is attached to the fundus, that portion of the uterus may be weakened, and the weight of the placenta, plus too vigorous use of pituitrin may cause a dimpling of

the fundus and a consequent inversion. If we add to these factors, an undue effort to express the placenta during the period of relaxation of the fundus, we have probably cornered the most logical causes of uterine inversion. Due to the fact that, according to Thorn, 54 per cent of the cases occur spontaneously, it would seem that other factors than unskillful technic must be regarded as etiologic agents.

A review of the literature by Bethune¹ leads him to observe that the majority of cases occur in the home. Many of them are probably unreported and the ensuing death may be blamed on postpartum hemorrhage. Often the first sign of inversion will be sudden extreme shock accompanied by profuse hemorrhage. Inversion usually takes place within an hour or two after delivery, but it may be delayed for a day or even a week. Fairlie² reports a case of inversion thirty days after delivery; Williams records three successive inversions in the same patient; and Johnston³ saw a case in a nulliparous woman.

Theoretically, the treatment of inversion is simple; the uterus should be replaced, either manually or by the Spinelli operation, which is an anterior hysterocolpotomy. In actual practice this procedure is not as simple as one might be led to believe. There is an element of stage fright, buck fever, or microphone terror on the part of the attending physician which must be overcome. According to the literature the correct procedure is gently to replace the uterus, much as one would replace the finger of a glove which has been turned inside out. This should be done before the placenta is detached. In the case herewith described the placenta was easily detached first, after which the fundus was invaginated. It slipped back readily and could easily be felt in the pelvis. It was firmly contracted but the bleeding continued. The uterus was packed and pituitrin was given, but the bleeding still continued. Even several transfusions could not bring it under control. While the fundus was apparently firmly contracted, there was a small dimple in the dome which would not unfold. This was undoubtedly the cause of the bleeding. After a surgical consultant's examination, a hysterectomy was done and there was no further bleeding. Hysterectomy may seem to be a radical procedure for inversion, but in this case it was to be preferred over the Spinelli operation. After the Spinelli operation there may be a rupture of the uterus, if pregnancy occurs. A uterus which has inverted once may repeat the process if there are future pregnancies.

Experience proves, therefore, that no matter how rare inversion of the uterus may be, it can occur.

One should avoid Credé's method of expression during the period of uterine relaxation, and not administer excessive amounts of pituitrin or ergot. Sudden profuse hemorrhage, accompanied by extreme shock, should suggest inversion and demands a careful examination. If inversion occurs, the organ should be replaced immediately, unless the shock is too great. In that case, the shock should be treated first, and hemorrhage second. The hemorrhage is best controlled by packing. If the uterus does not readily return to its proper place, surgery is indicated, either by the Spinelli method or by a hysterectomy. Sepsis, the great bug-bear of obstetrics, fortunately, is not greatly to be feared in inversions. There is considerable comfort in the fact that a patient with inversion of the uterus has a 50 to 85 per cent chance to recover.

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ROENTGEN EXAMINATION OF THE PELVIS IN PREGNANCY

A. E. PERLEY, M.D.
WATERLOO

The proper care of a pregnant woman from the time the diagnosis has been made until after delivery is founded on a thorough knowledge of all the factors in the case. Among the important factors are the size of the mother's pelvis and the diameters of the child's head, and their proportion to each other. Modern x-ray technic now gives these measurements to the obstetrician with a high degree of accuracy. There are several excellent technics, all utilizing the same principle. One of these, and probably the most widely used, is known as the Thoms' method.

It was originated by Dr. Thoms (head of the department of obstetrics and gynecology at Yale Medical School) in 1923. Since then, he has tested it in nearly every conceivable way. The eight years from 1923 to 1931 were spent in giving the method a thorough trial. The technic is featured by ingenuity coupled with simplicity; ingenious because it gives us a method whereby a measuring scale can be placed at the level of the plane of the superior strait with sufficient accuracy for all practical purposes, and simple because it can easily be performed in any fairly well-

equipped laboratory. No expensive apparatus is needed.

DESCRIPTION OF THE THOMS' METHOD

At the present time, Thoms has developed three parts to his technic; first, measurement of the fetal head to determine the age of the fetus by the longest diameter of the skull; second, measurement of the pelvic outlet with the patient seated on Bucky diaphragm; and third, a lateral view of the pelvis with the patient standing at a five-foot target-film distance.

Cephalometry. Measurement of the child's head can be made from all three of the technics mentioned above. A more accurate estimate can be drawn from all three than from one alone. From my own experience, if only one was to be used, the second one would give sufficient information for a reliable report.

1. The patient lies supine on the Bucky diaphragm with perpendicular rays striking the parietal region of the child's head. Thirty-six inch distance is used. Exposure is made, and by abdominal palpation and calipers, the distance of the mid-portion of the child's head to the film is estimated. The patient is removed and a perforated lead screen, with perforations one centimeter apart, is interposed. A flash exposure is now made on the same film. The head should be movable at the superior strait. This examination should be made in the latter weeks of pregnancy. It is only of value in measuring the fetal head and not the pelvis. Dr. Thoms has carefully tested the accuracy of this procedure experimentally by means of a dried infant's skull, reflected light, and a screen. His conclusions are that it is accurate within two to three millimeters.

2. This measurement can be used for cephalometry or pelvimetry. It can be used in non-pregnant women as well as in pregnant women, or can be used to measure the male pelvis. When

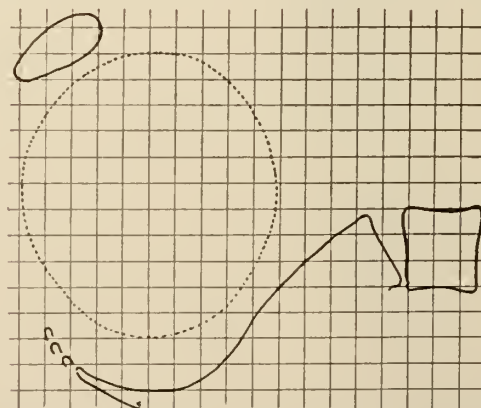


Fig. 1. Lateral view at five foot distance shows curvature of the sacrum, anteroposterior diameter of the pelvis, and the diameter of the child's head.

the measurements of the child's head are desired at the same time as those of the pelvis, the patient should be near term and the head of the child fixed at the superior strait. This gives us two transverse diameters of the child's head and also a fairly exact estimate of the proportion between the size of the child's head and the size of the superior strait. The details of the technic are as follows. A small tab of adhesive tape is placed over the spine at a point between the spinous processes of the fourth and fifth lumbar vertebrae. The patient sits on the Bucky diaphragm, in a semi-reclining position, so that the superior strait is placed as nearly as possible in a horizontal line with the film. The tube is centered over the middle of the superior strait with a thirty-two inch film-target distance. An exposure is made. Measurements are then taken between the tab of adhesive tape on the patient's back and the top of the Bucky diaphragm; and also from the top of the pubis to the top of the Bucky diaphragm. The patient is then removed and the perforated screen (described above) is interposed between the tube and top of the Bucky diaphragm according to the measurements of the calipers. A flash exposure is then made.

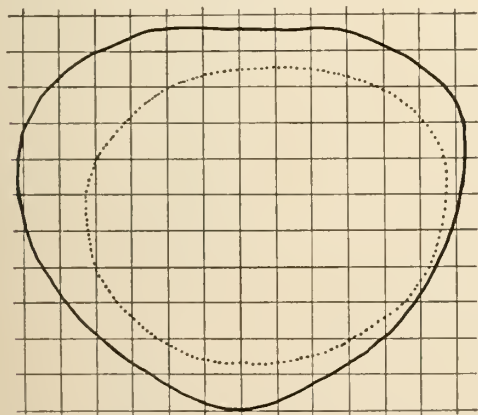


Fig. 2. 1998—Average brachypellic pelvis (gynecoid). Internal conjugate, 6 centimeters; external conjugate, 16 centimeters. Very small woman; normal delivery.

3. This technic is of more value in determining the anteroposterior diameter of the pelvis and the inclination of the sacrum than as a means of learning the diameter of the fetal head. However, as Thoms states, "In most cases of vertex presentation at term, the all important biparietal diameter of the fetal head may be determined with reasonable accuracy." The details of this technic are as follows. The patient stands in stocking feet with one side toward the Bucky grid. The film-target distance is five feet, with the central ray directed at the point on the ex-

ternal conjugate diameter one-third the distance from the symphysis pubis to the depression under the fifth lumbar vertebra. Thoms places a metal rod, the upper part notched in centimeters, close to the fold of the nates. This gives a scale from which measurements can be made. The Thoms grid could also be used, with the exposed film placed on the floor and the perforated screen horizontal to it at the same distance as from the fold of the nates to the Bucky surface. The same film-target distance is used with a flash exposure.

In a study of 149 fetal heads Thoms found the following tables very accurate:

Occipitofrontal diameter of			
12.5 cm. subtract	2.5 cm. for	biparietal	
12.0 "	"	2.5 "	"
11.5 "	"	2.0 "	"
11.0 "	"	1.75 "	"
10.5 "	"	1.5 "	"
10.0 "	"	1.5 "	"
9.0 "	"	1.5 "	"

An occipitofrontal diameter of 11.5 centimeters or over signified a safely matured fetus; 11.0 centimeters, slightly, if any, premature; below 10.5 centimeters, unquestionably premature.

The relation of occipitofrontal diameter to the body weight and length are estimated as follows:

8 to 9 cm. — 2.6 to 3.3 lb.	7.5 cm. to 9.5 cm.—35 to 40 cm.
9 to 10 cm. — 3.3 to 4.4 lb.	9.5 cm. to 10.0 cm.—40 to 45 cm.
10 to 11 cm. — 4.4 to 5.5 lb.	10.5 cm. to 11.0 cm.—45 to 50 cm.
11 cm. or more—5.5 to 6.6 lb.	11.0 cm. or more — 50 to 55 cm.

Therefore, if we have an occipitofrontal diameter of 10.5 centimeters, the child will probably have a crown-heel length of over 45 centimeters, and will weight over 5.5 pounds. Thoms says, "I am convinced that the best index to the fetal age is that of fetal length, and this can be very closely estimated by the occipitofrontal diameter." He believes it of greater importance than the weight, which may be much more variable. Thoms made a study of 446 infants on the relationship of the crown-heel length to the occipitofrontal diameter, with the following results:

Length 50 to 55 cm.—55 cases, of which 48 cases, or 87.3 per cent, had occipitofrontal diameters of 11 cm. or over.

Length 45 to 50 cm.—314 cases, of which 283, or 90.0 per cent, had occipitofrontal diameters of 10.5 or over.

Length 40 to 45 cm.—70 cases, of which 51, or 72.8 per cent, had occipitofrontal diameters of 9.5 to 10.5 cm.

Length 35 to 40 cm.—7 cases, of which 7, or 100 per cent, had occipitofrontal diameters of 7.5 to 9.5 cm.

A study of 453 infants shows the following relations of body weight to occipitofrontal diameter.

Weight 2500 to 3000 gm. 327 cases, of which 264, or 80.9 per cent, had occipitofrontal diameters of 11 cm. or more

Weight 2000 to 2500 gm. 81 cases, of which 69, or 85.2 per cent, had occipitofrontal diameters of 10 to 11 cm.

Weight 1500 to 2000 gm. 39 cases, of which 27, or 69.2 per cent, had occipitofrontal diameters of 9 to 10 cm.

Weight 1200 to 1500 gm. 6 cases, of which 4, or 66.7 per cent, had occipitofrontal diameters of 8 to 9 cm.

"From the figures presented above, we have evidence that in a given instance and intra-uterine occipitofrontal diameter of over 10.5 centimeters will be accompanied by a crown-heel length of over 45 centimeters, and body weight of over 2500 grams."

The information acquired from the roentgen study of the pelvis itself may be divided into four sections: classification, measurements, inclination of the sacrum, and the pelvic angle. The first two are of paramount importance. The inclination of the sacrum may occasionally have a bearing on labor. The pelvic angle may give us some valuable information. Perhaps these last two have not been given proper importance, but as yet, much significance has not been attached to either.

TYPE OF PELVIS

A classification should be as simple and practical as possible, if it expects general adoption. Dr. Thoms¹ comments on the similarity in meaning of the words "android" and "anthropoid" and on the fact that we really have no scientific basis for the terms "man-like" or "woman-like." His terms are Greek derivatives describing the shape of the superior strait. This seems logical and, therefore, Thoms' classification will hereafter be followed.

"On the basis of the length of the anteroposterior diameter these first three groups (which more commonly occur) may be divided for purposes of clinical uses into large, average, and small pelvises, as follows:

1. Dolichopellic or anthropoid type, (associated with occipitoposterior positions by Dr. Thoms): Anteroposterior diameter of 14 centimeters or more, large pelvis; between 12 and 14 centimeters, average pelvis, 12 centimeters or less, small pelvis.

2. Mesatipellic (or round) type: Anteroposterior diameter 13 centimeters or more, large pelvis; between 11 and 13 centimeters, average pelvis; 11 centimeters or less, small pelvis.

3. Brachypellic (or oval) type: Anteroposterior diameter 12 centimeters or more, large pelvis; between 10 and 12 centimeters, average pelvis; 10 centimeters or less, small pelvis.

4. Platypellic (or flat) type, (associated with rickets): Elongated ovoid shape transversely."

"It is obvious that the above classification is

chiefly useful in depicting the shape of the superior strait. In describing a given pelvis, therefore, it may be necessary to use additional terms; for example, such terms as 'mesatipellic type with narrow forepart' or 'dolichopellic type with funnel outlet.'"

Therefore, we have a variation in the normal limits as follows: Anteroposterior measurement, —10 centimeters, (Brachypellic type) to 14 centimeters, (Dolichopellic type); and transverse measurement, —10 centimeters, (Dolichopellic type) to 14 centimeters, (Brachypellic type).

	Large	Avg.	Small
Dolichopellic type occurred 70 times, or 15.5%	6	55	11
Mesatipellic type occurred 203 times, or 45.1%	17	145	41
Brachypellic type occurred 156 times, or 34.7%	27	110	19
Platypellic type occurred 21 times, or 4.6%	—	—	—

When the inter-tuberal distance is eight centimeters or less, the pelvis is designated as "funnel type." Dr. Thoms found that this occurred 21 times, or 31 per cent in the dolichopellic type, and 18 to 19 per cent in the others. The incidence of operative interference occurred about 33.3 per cent in the platypellic type, about 16 per cent in the dolichopellic type, and 19 per cent in the others. Cesarean section was performed in 19 per cent of the platypellic type, five per cent in the brachypellic type, 0.5 per cent in the mesatipellic type, and in none of the dolichopellic type. Breech positions occurred in ten per cent of the dolichopellic type, about three per cent in the mesatipellic type, and none in the platypellic type. Occipitoposterior positions were found in 18.6 per cent of the dolichopellic type, 10.8 per cent of the mesatipellic type, 8.2 per cent of the brachypellic type, and 9.5 per cent of the platypellic type.

Garland, Pettit, Dunn and Shumaker studied one hundred consecutive cases, 17 per cent of which showed dystocia, and compared them with Caldwell and Moloy's series.

	Garland, et al.	Caldwell and Moloy	Thoms*
Gynecoid	51.0	41.4	34.7
Android	21.0	32.5	45.1
Anthropoid	18.0	23.5	15.5
Platypellic	5.0	26.6	4.6

*Added by author.

SURGICAL INTERVENTION

	Garland, et al.	Thoms
Gynecoid	11.7	19.8
Android	29.0	18.2
Anthropoid	22.0	15.7
Platypellic	20.0	33.3

The greater sciatic notch and inclination of the sacrum have been studied by Garland, Pettit, Dunn and Shumaker. The patient lies on one side with padding under the lower costal area to make the axis of the sacrum as nearly parallel to the table as possible. An attempt is made to secure superimposition of the shadows of the greater sacral sciatic notches.

INCLINATION OF THE SACRUM AND PUBIC ANGLE

Garland, Pettit, Dunn and Shumaker² describe a technic for measuring the pubic angle. The patient is supine, with the tube tipped 30 degrees, cephalad and centered just below the symphysis. Caldwell and Moloy use a 45 degree angle, but these four authors believe this to be impractical. In estimating the size of this angle, they follow Caldwell and Moloy's classification of wide, moderate, and narrow. The brachypellic type of pelvis more frequently has a wide pelvic angle, while the narrow pelvic angle is found in the dolichopellic type. A narrow pelvic angle is characteristic of the male pelvis, or the male type of the female pelvis.

Thoms³ further emphasizes the same criticisms expressed by Williams in his textbook on obstetrics published in 1916. He quotes from Dohrn who discussed Baudelocque diameter in 1867, stating that this was very inaccurate. In the same year, Schoder says that the method of Baudelocque is of no particular value in diagnosing narrow pelvis. Skutsch, in reviewing 100 pelvis, and Baisset, in 120 dried pelvis, arrive at the same conclusions.

Thoms gives the following examples:

	Spines	Crests	Trochanters	External Conjugate	True Anteroposterior	True Transverse
Case 49	24	27	30	20	10	12.75
Case 52	20	24	28	16	10	10.75

True anteroposterior the same, external conjugate varied by 4.0 centimeters.

	Spines	Crests	Trochanters	External Conjugate	True Anteroposterior	True Transverse
Case 54	23	25		17	7.75	13.
Case 53	24	28	29	17	11.0	10.75

External conjugates identical, true anteroposterior varies 3.25 centimeters.

	Spines	Crests	Trochanters	External Conjugate	True Anteroposterior	True Transverse
Case 37	22	24.75	29	16.75	11.	12.5
Case 41	21	24.	24	18.	11.5	11.5

These would be classified as generally contracted pelvis, but internal measurements show adequate pelvis with no general contraction.

Speaking of the diagonal conjugate, Thoms notices that many times in their clinic, the letters

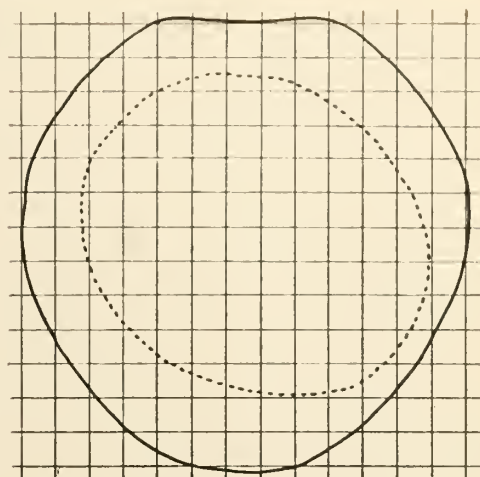


Fig. 3. 1965—Large mesopellic (android type).

N. R. (not reached) appear on the record sheets. Sometimes an examiner has short fingers. Sometimes both fingers cannot be introduced without anesthesia, and sometimes there is abnormal resistance in the perineum. Other factors play a part; the amount to deduct in order to obtain the true conjugate may be extremely variable. Again we have the thickness, height, and inclination of the symphysis. Concluding, Thoms makes this statement, "To classify pelvis by means of the four external measurements usually taken is erroneous and illogical. Furthermore, the question may well be raised whether in the absence of roentgenometric methods external measurements are at all valuable. I must confess they mean very little to me."

INDICATIONS FOR ROENTGEN PELVIMETRY AND CEPHALOMETRY

Thoms believes the routine use in primiparous women will influence future obstetric procedure, and that statistical and clinical knowledge of these variations will be valuable. Those who should have the advantage of this study include all primiparas in whom vertex fails to become well engaged by the thirty-second to thirty-fourth week of pregnancy; any multipara who presents a history of previous difficult labor with an infant of normal size; any multipara who presents a history of fetal death subsequent to delivery from below; and primiparas with occipitoposterior or abnormal positions.

Roentgen cephalometry is indicated in toxemia of pregnancy to determine the maturity of the fetus; in pyelitis or cystitis necessitating induction of premature labor; in any condition where viability of the fetus is questioned; and in any condition where one suspects an over-sized in-

fant when shortening of either the anteroposterior or transverse diameter of the superior strait is present.

CONCLUSION

The Thoms' method with its three technics gives:

1. A fairly accurate idea of the size of the child's head from which one can estimate the age of the fetus in the latter months of pregnancy.
2. The relationship between the size of the child's head and the size of the superior strait.
3. The type of pelvis with the influence each may have on labor, the platypellic with its propensity to dystocia, the dolichopellic with its tendency to posterior positions, etc.
4. The anteroposterior and lateral measurements of the superior strait.
5. The inclination of the sacrum, presence or absence of bony abnormalities.

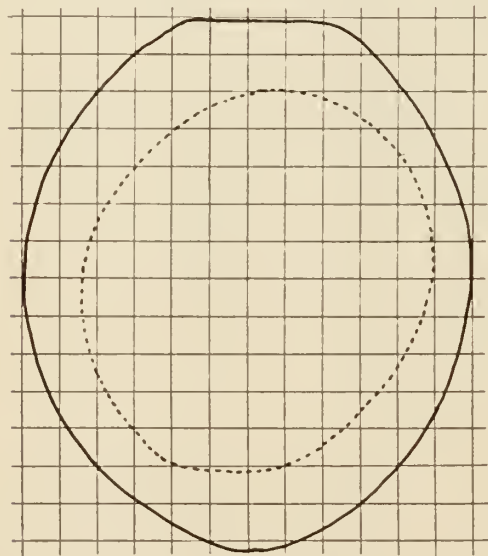


Fig. 4. 2350—Large dolichopellic (anthropoid type).

As added proof of the accuracy of roentgen measurements of the female pelvis, Torpin, of the University of Georgia School of Medicine (Thoms' technic is employed by Dr. Holmes in their radiological department), says: "For eighteen months all of the gynecologic laparotomies, 150 or so, on my service have been subjected to actual measurement of the pelvic inlet, anteroposterior and transverse. When these patients are about ready to go home, Dr. Holmes x-rays them using the device you saw at Chicigo. I haven't checked up on these as yet thoroughly, but those I have, have correlated as follows: the anteroposterior checks to about one-half centimeter in most cases, the transverse diameter not so well, obviously. Using the machine, we can cut the

individual expense to one 8 by 10 film and at the same time get a good idea of the pelvic from its contour: vis, gynecoid, anthropoid; android, and platypellic. This corresponds to the newer classifications of Caldwell, etc., and Thoms, which I think fundamentally are quite similar."

I sincerely believe that every primipara should have this examination as a routine part of her care. If she has to economize, then she should be examined if measurements show a possibility of a small pelvis or an extra large child. If there is any delay in labor she should be measured. If she is over thirty years she should have a careful measurement of the pelvis. Every multipara who has a history of previous dystocia should be measured.

There is no reason why x-ray should not be used in such an important case as a woman with her first pregnancy. Several generations ago women had ten and fourteen children and a mother expected to lose two to three of them. Today women have only two, or sometimes three, children, and every precaution should be taken to prevent the loss of life of the child. The author has employed this method in thirty cases. Three of these patients were scheduled for cesarean section, but delivered normally when the proportions were normal. The necessity for a cesarean section was proved in another three. In the greater number of patients the additional assurance that their pregnancies were to be normal ones improved their morale, especially in cases of the first pregnancy.

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CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

THE DIAGNOSIS AND CLINICAL ASPECTS OF BRAIN TUMORS

A. L. SAHS, M.D., Iowa City
Department of Neurology

Since it is difficult and often impossible to differentiate clinically between brain tumors and intracranial tumors in general, this discussion will be concerned with intracranial tumors, namely those which originate within the substance of the brain or otherwise encroach on the intracranial cavity.

Unquestionably brain tumors are rare; nevertheless, intracranial neoplasms constitute a very significant percentage of our cases. Of 1350 patients admitted to the Neurological Service since January 1, 1938, a diagnosis of brain tumor or brain tumor "suspect" was made in 89, or roughly, in a proportion of one to fifteen. From the hospital archives, the records of an additional 20 patients with brain tumor were found. Of both these groups, 79 patients were proved at operation or autopsy to have intracranial neoplasm. This list can be analyzed further, and a detailed enumeration of tumor types is shown in Table 1.

Early diagnosis, unfortunately, is not easy. A few patients must remain brain tumor "suspects" for months or even years because our present methods are not sufficiently accurate to permit a correct diagnosis earlier. It seems that we must learn to depend less upon rigid insistence on the time-honored triad of headache, vomiting, and choked discs if we are to recognize the early cases, because these symptoms are, much too frequently, the manifestations of a process which is far advanced. An expanding lesion in the intracranial cavity produces its effects in two principal ways: local effects resulting from disturbance of the physiology of the area involved; and general effects resulting from the disturbance of the flow of cerebrospinal fluid and blood within the cranial cavity.

A note of caution should be injected here: intracranial tumors are notorious in their capacity for producing false localizing signs. In other words, a neoplasm may distort the brain in such a manner that the actual pressure effects are manifested in other areas.

Tumors of the cerebellum typically produce nystagmus, asynergia, and disorders in alternate motion rate, as well as disturbances of station and gait. Tumors of the pons, for instance, produce disturbances of the cranial nerves which arise in that area and involve, as well, the descending and ascending pathways. Tumors of the pre-central region lead to Jacksonian seizures and/or paralysis of the opposite side of the body. If the tumor is situated further posteriorly the seizure may occur in the sensory realm. Tumors of the frontal lobe anterior to the central convolution characteristically produce mental disturbances, such as changes in personality, loss of interest, failure of memory, facetiousness, and the like. Neoplasms of the temporal lobe, if they occur in the dominant hemisphere are prone to produce aphasic speech disturbances. A temporal lobe tumor situated medially, in the uncus, will usually produce extremely unpleasant hallucinations of smell and taste. Tumors of the occipital lobe are sometimes charac-

terized by visual hallucinations, generally in the field of vision opposite to the side of the tumor. Tumors of the third ventricle lead to definite disturbances, most prominent of which are diabetes insipidus and polyuria, disturbances in sleep rhythm, central pain, and the like. This list of areas is not complete, but serves to illustrate a few of the characteristic symptoms to be expected from tumors located in certain portions of the brain. Many failures to find tumors in the past have been due to placing too much reliance on the results of clinical localization.

A review of the histories of the 79 verified cases seen in this hospital since January 1, 1938, showed the outstanding symptom to be headache. Next in order came vomiting; failing vision; spells of unconsciousness; dizziness; weakness and paralysis or numbness of one or more of the extremities; staggering; double vision; mental changes; focal seizures; speech disturbances; generalized weakness; incontinence; prominence of one eye; drowsiness; nervousness; ringing in the ears; and weight loss.

The outstanding clinical signs were choked discs; psychic changes; aphasia; paresis or paralysis of the facial muscles or extremities; changes in the visual fields; reduction in vision; ataxia; paresis or paralysis of eye muscles; nystagmus; stiff neck; observed general or focal seizures; primary or secondary optic atrophy; prominence of one eye; and pupillary inequalities. It is interesting to note that choked discs were present in 50 per cent of the patients and optic atrophy in four per cent, while no fundal changes of significance were to be found in 46 per cent. An analysis of the spinal fluid findings brought out the following information; using 200 millimeters of fluid, with the patient in the horizontal position, as the top limit of normal, it was found that 55 per cent of the patients had elevated pressure. A spinal fluid cell count above ten was present in 21 per cent of the patients; this finding was particularly noticeable in the glioblastoma group. Spinal fluid protein content above 100 milligrams per 100 cubic centimeters was present in 25 per cent. The observations relative to the cell count and protein measurements were taken only from those patients who showed a negative test for blood in the spinal fluid. Merritt and Fremont-Smith¹ examined the cerebrospinal fluid in 182 patients with brain tumors. They found a pressure greater than 200 millimeters in 70 per cent, a cell count of more than ten in 17 per cent and a protein content over 100 in 32 per cent of their patients. Pleocytosis, therefore, is present with sufficient regularity, in our experience, to suggest caution with regard to diagnosis. It is very easy to feel that because

there is an increased cell count in the spinal fluid the condition must be inflammatory in origin, particularly when the spinal fluid protein is elevated, as is so frequently the case in these patients. Another lesson to learn is that the absence of intracranial hypertension as measured through the spinal puncture needle does not eliminate the possibility of the presence of a neoplasm. In other words, the presence of high spinal fluid pressure is very useful in the diagnosis of an intracranial neoplasm, but its absence does not eliminate the condition.

The patient with the shortest clinical course in this series was a man fifty-one years of age who developed headache, nausea, and vomiting ten days before admission. Examination showed him to be stuporous, with early choked discs and a questionable left hemianesthesia. He was dead fifteen days after onset. On the other hand, a few of the patients in the series had a history of five to eight years' duration. No age group was immune, the patients ranging from three to sixty-seven years in age. In general it can be stated that most of the tumors in children occur in the posterior fossa, and that the majority of tumors in adults are supratentorial.

The procedures used for the diagnosis of brain tumors include the following steps: a careful history; neurologic examination, with particular reference to condition of the pupils, ocular rotations, fundi, other cranial nerves, especially the seventh, tests for coordination, reflexes, sensory examination, station and gait; spinal fluid examination, to include initial pressure measurement, Pandy reaction, cell count, total protein and Wassermann reaction; eye examination relative to vision, fields, and fundi; roentgenograms of the skull, encephalography or ventriculography, depending upon the indications. We have not used cerebral arteriography, and only recently have we begun the study of brain tumors by means of electro-encephalography.

The differential diagnosis includes a large number of conditions, certain ones of which come to the foreground in a consideration of intracranial neoplasms. The symptoms and signs of syphilis of the brain are, at times, indistinguishable from those of brain tumor. The matter becomes even more complex in the occasional patient with neurosyphilis with choked discs. Wassermann tests on the blood and spinal fluid are of the most value. In only one of the 79 case histories reviewed was there a "doubtful" spinal fluid Wassermann reaction. The remainder were negative. In one patient in this series, about whom there could be no question relative to the pathologic diagnosis of

gumma, the blood and spinal fluid Wassermann tests were negative.

Epilepsy as an isolated symptom often offers important diagnostic considerations. We know that epileptic seizures may precede the other manifestations of cerebral neoplasm by months or even years. Bailey² states that, "The condition of idiopathic epilepsy develops in over 50 per cent of the cases before the age of fifteen, in over 85 per cent before the age of thirty, and in over 90 per cent before the age of forty. This means, of course, that whenever a previously normal individual develops epileptic attacks in middle life . . . its nature must be carefully sought." If, after careful examination, one takes the precaution to have the so-called idiopathic epileptic patient of middle age return for check-up examination, one may find a full-blown tumor syndrome.

Brain abscess produces, in general, the same manifestations as does tumor. The history and findings of infection elsewhere in the body, particularly in the nasal sinuses, the middle ears or the lungs, should give a clue to the nature of the process.

Vascular disease of the brain can be very readily confused with neoplasm. When one remembers that a fairly large number of brain tumors occur in the period of life when vascular disease is making its appearance, the difficulties in making a correct diagnosis are greatly increased. One should remember, too, that neoplasms may make their appearance in an apoplectiform manner. The presence of true papilledema, hypertension, and evidence of a progressive lesion makes one favor the diagnosis of tumor, but not infrequently one must depend on ventriculography before a correct diagnosis can be made.

The history and signs of subdural hematoma point to an expanding intracranial mass. The history of a blow on the head or of alcoholism in the patient is not uncommon.

Psychoneurotic individuals complain of headaches which are generally only a sense of pressure on the top of the head. Vomiting is seldom caused by the headache. Certain "spells" of which these people complain may be difficult to distinguish from true epileptic seizures. The consistently negative findings for organic disease, a history of emotional factors responsible for the condition, and an evaluation of the individual's personality are usually sufficient for making the correct diagnosis. Tuberculous meningitis and the rare meningitides, encephalitis, multiple sclerosis, and intracranial aneurysms sometimes offer difficulties in the differential diagnosis.

TABLE I

Gliomas	51
Astrocytoma	15
Glioblastoma Multiforme	25
Medulloblastoma	4
Spongioblastoma Polare	2
Oligodendroglioma	2
Ependymoma	1
Unclassified	2
Pituitary Adenomas	2
Chromophobe	2
Meningiomas	10
Acoustic Neurinomas	1
Congenital Tumors	4
Craniopharyngiomas	2
Cholesteatoma and Dermoids	2
Metastatic Tumors	5
Carcinoma	1
Sarcoma	3
Hypernephroma	1
Granulomas	1
Syphilomas (Gummas)	1
Blood Vessel Tumors	3
Hemangioblastomas	3
Papilloma of Choroid Plexus	1
Miscellaneous	1
	<hr/> 79

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THE X-RAY DIAGNOSIS OF BRAIN TUMORS

CARL L. GILLIES, M.D., Iowa City
Department of Radiology

The x-ray diagnosis of brain tumors can be considered under two headings: first, from information obtained from routine skull films; and second, from information obtained after the introduction of contrast substances into the ventricles, subarachnoid spaces and cisterna. Because of the great number of negative skull films the general impression is gathered that little information concerning the diagnosis and localization of brain lesions is obtained from them. However, the vast majority of patients upon whom skull films are obtained, have, in fact, no organic disease. When one considers only the patients who do have organic intracranial disease, the amount of information that can be obtained is remarkable.

The signs of intracranial lesions may be either indirect or direct. One of the most important indirect signs is a shift in position of a calcified pineal gland. Sixty per cent of the people over twenty years of age have roentgenographically visible calcification in the pineal gland. Since this gland occupies a relative mid-position in the brain, it is obvious that tumors are very likely to produce a shift in position of this structure. Accurate standards of the normal position of the pineal

gland have been set up by Vastine and Kinney, Dyke, and Fray. By comparing any given case with these standards, a space-occupying lesion can often be roughly localized. That is, the pineal gland will be shifted away from the lesion so that one can frequently determine the side upon which the tumor is located, or whether the lesion is in front or behind the pineal gland. Another indirect sign is increased digital markings or the hammered silver effect of the skull produced from a pressure atrophy of the internal table by actual pressure from the convolutions of the brain in patients with increased intracranial pressure. The presence of this finding indicates that there has been increased intracranial pressure for at least six months. Subtentorial lesions which block the flow of cerebrospinal fluid and produce a symmetrical dilation of the ventricular system commonly produce this finding. If the patient is young and the sutures open, they will also separate. This hydrocephalus, which includes the third ventricle, causes a characteristic atrophy of the posterior clinoid processes and enlargement of the sella from direct pressure of the dilated third ventricle. In the past this appearance has frequently been mistaken for intrasellar tumors. With tumors in the posterior fossa, the posterior clinoid processes are eroded from the top and the sella is not ballooned out, as typically occurs in intrasellar tumors. Moreover, intrasellar tumors practically never produce x-ray signs of increased intracranial pressure.

Of the tumors producing direct signs, meningiomas are perhaps most important. These occur at the points of attachment of the dura to the skull and vascular sinuses. Two-thirds of these tumors are located at, or in front of, the coronal suture. The region of the coronal suture, superior longitudinal sinus, sphenoid ridge, and tuberculum sellae being favorite sites of origin. These tumors are very prone to show calcification. The calcification occurs in characteristic, small, punctate areas. Bone growth is also frequently stimulated. Dense new bone which is laid down perpendicular to the skull is sometimes formed; a definite enostosis is frequently seen. Meningiomas are also known for their vascularity and often cause increased vascular markings in the skull. When such are unilateral and localized, one should at least be suspicious of the presence of meningiomas. The eighth nerve, or cerebellopontine angle tumors always arise from the nerve within the internal auditory meatus or porus acusticus: they erode the bone early and produce a widening of the internal auditory canal which can easily be demonstrated by x-ray.

Pituitary tumors are of four kinds and produce different x-ray changes:

1. The chromophobe adenoma gives a very

characteristic picture. The sella is ballooned out and the floor is depressed. The posterior clinoid processes are either thinned or absent. The anterior clinoid processes are thinned from below.

2. The eosinophile, or acidophile, tumor usually enlarges the sella only slightly if at all, and not in a characteristic manner. However, the changes of accompanying acromegaly are shown on the films as huge frontal sinuses and prominent mandible.

3. The basophile tumor, described by Cushing, produces no sellar changes. There is an accompanying decalcification of the skull similar to that seen in hyperparathyroid disease.

4. The malignant adenocarcinomas, while rare, produce a characteristic picture. The sphenoid bone is invaded and destroyed, but not displaced as with adenomas.

In the region of the sella there also occur the craniopharyngiomas, variously known as suprasellar cyst, adamantinoma, cholesteatoma, and Rathke pouch tumors. These tumors are of congenital origin and, as one would suspect, are most common in children. They are prone to calcify and thus reveal their location by x-ray. Aneurysm of the internal carotid artery, on the other hand, occurs in older individuals and is revealed by a curvilinear shadow due to calcification within the wall. There is also an accompanying erosion of one side of the sella.

Optic nerve tumors produce a pressure defect anterior to the sella, giving, in the lateral view, the appearance of a double sella. The optic foramen on the involved side is also enlarged and can be easily demonstrated. Lipomas and dermoid cysts containing fat, while exceedingly rare, reveal themselves by a translucent area within the brain, since fat is not as opaque to x-ray as is normal brain tissue. The epidermoid tumors (pearly tumors) produce sharply circumscribed areas of destruction and involve both tables within the skull. The defect in the inner table is usually larger than that in the outer table. Hemangiomas usually accompany nevi on the outside of the skull. The lesions on the inside are prone to calcify and are characterized by a serpiginous configuration and, when vessels are observed in cross section, the circular appearance is characteristic. Of the cerebral gliomas, the oligodendrogliomas, being slow growing, are prone to calcify. The more common astrocytomas may at times also reveal their presence by showing calcium deposits. The other gliomatous tumors rarely, if ever, show calcification; but at times, if located near the surface of the brain, they produce a localized pressure atrophy of the internal table. The cerebellar tumors are usually found in children. The medulloblastomas are rapidly growing and, while they are likely to cause sepa-

ration of the sutures because of the short duration, are not likely to cause increased digital markings. The astrocytomas, on the other hand, are very slow growing, and, by closing the cerebrospinal fluid pathway, produce internal hydrocephalus, increased digital markings, and pressure atrophy of the sella from pressure of the enlarged third ventricle. The ependymomas are prone to calcify, and any tumor in the cerebellum in a child showing calcium is almost sure to be one.

In addition to the plain films, we also have recourse to the introduction of contrast substances either directly into the ventricles (ventriculography) or into the spinal canal (encephalography). The latter method outlines the cisterna, subarachnoid spaces and ventricles. Air, hydrogen, oxygen, ethylene, helium and other gases have been used. When the ventricles are visualized, space-occupying lesions reveal themselves as filling defects, or by displacement and deformity of the ventricular system and subarachnoid spaces. This method is accurate; but, because of the inherent danger, should be used only in selected patients after a thorough study of plain films.

SURGICAL TREATMENT OF PRIMARY BRAIN TUMORS

OLAN R. HYNDMAN, M.D., Iowa City
Department of Neurosurgery

Any substantial surgical treatment and management of a case of primary brain tumor involves at least two major considerations: first, the nature of the tumor; and second, the skill and experience of the surgeon. The latter embodies the indispensable help which the operator must have, both inside and outside the operating room. What is to be done for a patient with a brain tumor must be done in the operating room and all other studies are only adjuncts toward that end; hence, technical considerations are of prime importance. Bone wax, the Gigli saw, the electrocautery, and the sucker, instruments especially adapted to brain surgery, have not only made the latter technically possible, but have minimized the difficulties so that such operations may be routinely done on a par with general surgical procedures.

This discussion is limited to primary brain tumors which are all, from a pathologic standpoint, malignant tumors, and in reviewing the results this should be kept in mind. The one consoling fact is that such tumors, although they infiltrate, do not metastasize except in very rare instances. A medulloblastoma of the cerebellum may implant throughout the subarachnoid spaces.

PRIMARY TUMORS OF THE CEREBRUM

The two most common primary tumors of the

cerebrum are glioblastoma, (synonymous with spongioblastoma multiforme) and astrocytoma, and consequently the discussion will be concentrated on the treatment of these two types.

Glioblastoma: This tumor comprises about 30 per cent in any large series, against about 39 per cent of astrocytomas. Unfortunately, in our series at the University Hospital, the glioblastoma has comprised 70.5 per cent, against 29.5 per cent astrocytomas. I say unfortunately because the glioblastoma is a rapidly growing, highly malignant and practically incurable tumor, of the adult cerebral white matter. The poor operative results have led some neurosurgeons to adopt a "hands off" policy when a biopsy diagnosis has been made and to be content with at most a decompression. This policy has not been adopted here since it is felt that when the tumor can be largely removed by frontal, temporal or occipital lobectomy, this is the procedure of choice. This has been done in some cases with palliation, for which the patients have been grateful.

Astrocytoma: This is a relatively benign glioma. Its high incidence and the good surgical results in its treatment have been a great bolstering force toward producing optimism in brain tumor surgery. The tumor grows slowly, is relatively avascular and although it has no capsule, is usually well delimited. This is true of the solid forms which have about the same incidence as the cystic form. Every effort should be made to remove the solid form by lobectomy or enucleation. A good lease on life or a cure may be established in this way. Treatment of the cystic form gives even more hopeful results. We not infrequently encounter a large cyst filled with yellow fluid, in the wall of which is a small nodule which in itself constitutes the entire tumor. If this mural nodule is totally excised, the patient is cured. If one were forced to make a choice, this type of tumor, although it is classified as a glioma, would be preferred to a meningioma. Technically the former is usually easier to remove. The significant fact is that the symptoms are due to a large benign cyst containing a small removable tumor. The expansion of the cyst seldom destroys brain tissue.

The oligodendroglioma is infrequent, but is slow-growing, avascular and often partly calcified, and may be enucleated with about the same results as are obtained for the solid astrocytoma. The astroblastoma is infrequent and has much the same characteristics as the glioblastoma. The ependymoma is infrequent and ordinarily offers a poor prognosis because the tumors are in, or close to, the ventricles and hence infiltrate vital structures.

PRIMARY TUMORS OF THE CEREBELLUM

The two common tumors here are medulloblastoma and astrocytoma, and have about an equal incidence. The medulloblastoma is an incurable tumor, although it is the one tumor upon which radiation has a decided influence. Operation is usually terminated when the diagnosis is made, and the patient is referred to the radiologist.

Astrocytoma: This tumor in the cerebellum may be solid or cystic and the same principles brought out in reference to the cerebrum apply here. Some of our most brilliant results are obtained by the removal of astrocytomata from the cerebellums of children, and every effort should be made to accomplish this.

Hemangioblastoma: Although this is not a primary brain tumor, it is included here because it frequently behaves like a cystic astrocytoma; that is, a small mural nodule is associated with a large cyst and excision of the small tumor constitutes a cure.

The following table indicates the incidence of primary brain tumors at the University Hospital since August, 1935. Death in the hospital during the postoperative course is attributed to the operation. The patients who lived after removal of astrocytomata, oligodendroglioma, ependymoma, and hemangioblastoma are, so far as known, still living without evidence of recurrence.

Finally, it should be pointed out that direct observation and microscopic study is most often the only sure way of determining the type of glioma present. In view of the fact that such vast differences in operability and prognosis exist relative to the tumor types mentioned, it is felt that a tumor should always be explored when there is the least doubt concerning its nature; that is, the type of tumor should be established, if possible, before surgical treatment is abandoned. Much may be gained from this policy and relatively little can be lost except that the patient may die a few months sooner and the operator's statistics may look less favorable.

DATA FROM AUGUST, 1935 Intracranial tumors operated—152 PRIMARY BRAIN TUMORS

CEREBRUM	
Glioblastoma	48 (47.8% operative mortality)
Astrocytoma	20 (15.0% operative mortality)
Oligodendroglioma	3 (2 deaths)
Astroblastoma	1 (no death)
Ependymoma	3 (2 deaths)
CEREBELLUM	
Medulloblastoma	5 (2 deaths)
Astrocytoma	9 (2 deaths)
Ependymoma	1 (no death)
Hemangioblastoma*	3 (1 death)
Glioma of chiasm	1
Astrocytoma of pons	1
Astrocytoma of brain stem	2

*Not a primary brain tumor but included because characteristics simulate cystic astrocytoma.

Discussion

Dr. Kerr: These three papers bring home to us the very difficult question of the diagnosis and the treatment of brain tumors. Dr. Hyndman has pointed out that there are some types of tumors which cannot be attacked satisfactorily from a surgical standpoint. There are some which cannot be removed even after exploration and others which recur rapidly when partially removed. In these groups we have felt it advisable to attempt irradiation, with some degree of optimism. After all, any gain is a pure gain because if we do not do anything for the patients, they die.

I have recently had occasion to go over the thirty-five (approximately) patients whom we have treated and have a few interesting facts worthy of brief mention. One patient seen in August, 1938, with an astrocytoma, received a total of 6,400 roentgens, and was well without clinical evidence of headache in April, 1939. In August, 1938, treatment was begun on a patient with glioblastoma, and she was without sign of active tumor in April, 1939. A patient with glioblastoma seen in April, 1938, received 12,000 roentgens and was having a definite increase in the symptoms in June, 1939. A patient with medulloblastoma, seen in March, 1938, and given 12,000 roentgens, was much improved, but still had some difficulty with the arm and leg. A patient with a third ventricle tumor, seen in January, 1935, received 13,000 roentgens, and was clinically perfectly well and working full time in November, 1939. Eight thousand roentgens were given in March, 1935, to a patient with a medulloblastoma. He was going to school and making normal progress in May, 1939. A patient with a fourth ventricle ependymoma, seen in March, 1935, was given 15,400 roentgens, and gained fifty pounds in weight, was generally perfectly well, and working full time. A man with a large temporal astrocytoma, seen first in March, 1935, received 16,600 roentgens, felt well when inactive but had a sense of dizziness when he leaned over. A child with frontal glioma seen in August, 1934, received 15,400 roentgens, was perfectly well except that there was about six months' retardation in her schooling.

There is nothing particularly remarkable about these few patients except that the results furnish a ray of hope indicating that perhaps if we give sufficient irradiation, we may save some of them. Those of you who are conversant with the literature on irradiation treatment of brain tumor know that some people say we must not give very much treatment to the brain for fear of resulting degeneration. The safe limit has been estimated at 4,500 roentgens. We have patients to whom 15,000 units in air have been given, which is a far larger dose than is ordinarily specified. Some mental retardation has perhaps resulted in one patient, but she has lived more than five years.

Dr. Van Epps: I would like to ask Dr. Hyndman

to say something about pseudotumor, a subject in which he has been interested.

Dr. Hyndman: Some time ago Dr. Sahs and I reported on five patients in whom there was increased intracranial pressure, headache, irritability and choked discs. There were no other significant neurologic signs; the spinal fluids were negative and the ventriculograms were entirely normal. These patients fully recovered over a period of months under conservative treatment. Recently we have seen five more patients, the first of whom I decompressed because of marked choking of the discs. A great deal of fluid poured out when the dura was incised and we thought it appeared to be yellowish. In the last two patients of this group of five, the dura was very carefully incised. A large pocket of clear yellow fluid was found encased between thin layers of fibrous tissue. This pocket with its encasing membranes was between the dura and the arachnoid proper and did not communicate with the subarachnoid space. The same finding was seen in both patients, and in both patients it was identical on the two sides. The membrane of the pocket revealed fresh and old hemorrhages of varying sizes between its own layers. The disease and its etiology are obscure but of great interest and importance because it seems to be not uncommon. I once made the statement that any space-occupying mass within the cranium of sufficient size to cause increased intracranial pressure would manifest itself in the ventriculogram. This is the first exception to that rule which I have encountered.

Dr. DeGowin: Internists are seldom called upon to participate in the diagnosis of brain tumor, but one syndrome occasionally presents a peculiarly difficult problem. The patient is found to have an unusual distribution of fat striae, hypertension, amenorrhea in the female and impotence in the male. This has been called Cushing's syndrome, and Cushing described its occurrence in association with basophile adenomata of the anterior pituitary gland. Since the original description many such cases have been reported; some patients have been operated upon and an adenoma of the pituitary gland removed. However, there are now many authenticated cases with this syndrome which, upon postmortem examination, failed to show a lesion of the pituitary gland but showed instead, adenomata of adrenal gland. Therefore, when confronted with such a syndrome, it is often difficult to know whether to advise exploration of the adrenal glands or the pituitary gland.

Dr. Sahs: One additional comment, I feel, is in order. We have encountered a few cases of brain tumor in which, early in the course of the disorder, encephalograms proved to be normal. Subsequent encephalography or ventriculography several months later showed very definite evidence of the neoplasm. Thus in a few instances a repeat "air test" may be necessary to prove the diagnosis.

THE FINLEY HOSPITAL CLINICO- PATHOLOGIC CONFERENCES

CHOLECYSTITIS AND SOME OF ITS COMPLICATIONS

ANALYSIS OF 650 NECROPSIES

F. P. McNAMARA, M.D., Dubuque

It is a well known fact that gallbladder disease is often a clinical problem in patients beyond middle age. It is also common knowledge that this disease is frequently found at necropsies on patients in whom it had been unsuspected. Indeed, so often are chronic cholecystitis and cholelithiasis found at necropsy, some surgeons tend to belittle the problem presented by these conditions unless they give rise to acute symptoms. It is also stated that cholecystitis is frequently symptomless. Whether that statement is correct or not depends upon what are recognized as symptoms. If only an attack of gallbladder colic is considered a symptom, it is undoubtedly true. If on the other hand, mild distress in the gallbladder region, "biliousness," or attacks of what the laity term "indigestion" are recognized as symptoms, the statement is probably erroneous. It was hoped that this could be proved by an analysis of the clinical records of cases of "silent gallbladder disease" discovered at necropsy, but in the majority of instances the records were so indefinite on this point, such a study seemed without value. Therefore the necropsy records of 650 cases have been analyzed and the result will indicate the incidence of cholecystitis, its complications, associated conditions and sequelae. The analysis indicates the seriousness of some of the problems presented by the disease.

INCIDENCE

In the entire series of 650 necropsies, 117 (18 per cent) instances of gallbladder disease were encountered. Two of them were in infants; one had obliteration of the common duct, and in the other the common duct was absent. Except for such congenital defects gallbladder disease is rare under twenty years of age and in order to obtain a more accurate estimate of the incidence of the disease in adults, all cases under that age were eliminated from the study. In another group only the head was examined at necropsy and these were also omitted. In the remaining 505 cases there were 115 (22.77 per cent) instances of gallbladder disease; 310 males and 195 females. Forty-nine (15.8 per cent) of the men and 66 (33.84 per cent) of the women over twenty years of age had disease of the gallbladder or some condition re-

lated to it. Eighty-three (80 per cent) of those with gallbladder disease had gallstones. Death was directly or indirectly due to the disease of the gallbladder in 29 of the 115 cases (25.21 per cent).

COMPLICATIONS

The more common complications and important associated lesions are enumerated as follows:

Pericholecystitic adhesions	46
Carcinoma of the gallbladder.....	7
Acute pancreatitis	6
Stone in common duct, jaundice.....	6
Stone in cystic duct, mucocele.....	4
Cholecystoduodenal fistula; intestinal obstruction by gallstones	1
Intestinal obstruction due to postoperative adhe- sions	3
Diabetes mellitus	6
Coronary thrombosis	6
Generalized peritonitis	15
Cirrhosis of the liver.....	4
Pulmonary embolism	1

Clinically, 44 cases (38.26 per cent) were diagnosed; 71 (61.74 per cent) were unsuspected and only discovered at necropsy. This does not give an exact estimate of diagnostic accuracy because fifteen of the patients died without medical consultation or before adequate studies were possible. If these are eliminated, the clinical diagnosis was correct in 44 per cent. A review of the fragmentary records of the unsuspected cases indicates that there were only minor symptoms referable to the gallbladder. The more common of these were a "sense of fullness after meals"; "gas in the stomach"; "belching of gas" and "indigestion." Rarely was pain mentioned. A few gave histories of transient jaundice. Only one patient had a history of typhoid fever. While the clinical records were brief, it may be concluded that the symptoms in the majority of instances were mild and indefinite. This emphasizes the need for more intensive clinical studies of patients with vague digestive disturbances. Today the roentgenologic diagnosis of the disease is so highly accurate, it should be more widely used as a routine procedure in this type of patient, rather than be limited to the diagnosis of those with more definite gallbladder symptoms.

CAUSES OF DEATH

Gallstones were present in all but three of the patients who died. Two of the latter deaths were the result of intestinal obstruction caused by postoperative adhesions. In one of them, it is doubtful whether the gallbladder was diseased because the patient was subject to attacks of cardiac decompensation. The operation did not relieve his pain, which was probably due to stretching of the liver capsule. In the third case, the patient died four days after an operation for chronic cholecystitis, of generalized peritonitis. This was found to be due to a perforated appendix which had not been diagnosed.

The causes of death in the twenty-six patients with gallstones are listed as follows:

Carcinoma of the gallbladder; liver metastases.....	5
Carcinoma of the gallbladder; liver metastases and peritonitis	1
Carcinoma of the gallbladder; liver and peritoneal metastases	1
Acute necrotizing pancreatitis; peritonitis	6
Impacted stone in common duct; jaundice; peritonitis	4
Chronic and acute cholecystitis; peritonitis.....	3
Intestinal obstruction due to a gallstone; peritonitis	1
Postoperative shock; liver deaths(?).....	2
Postoperative pulmonary embolism.....	1
Postoperative coronary thrombosis.....	1
Chronic prostatitis; pyonephritis; postoperative uremia	1

COMMENT

The chief causes of death in the series were peritonitis, acute pancreatitis, carcinoma, and impacted stone in the common duct with jaundice. These are important because they indicate some of the problems which must be solved to reduce the mortality rate from the disease. Incidentally, a notable feature was the lack of pulmonary complications and hemorrhage which in other series, Heuer,¹ Boyce et al.,² and Ranson and Bergh,³ accounted for 25, 17, and 12 per cent, respectively.

Peritonitis may be the result of infection of the gallbladder or due to bile in the peritoneal cavity. Bacteria may reach the peritoneum by perforation of the viscus or by extension through its wall. The infection may be mild, moderately severe or intense, thus causing varying degrees of necrosis and of the resulting inflammatory reaction. Unfortunately it is impossible to anticipate the exact reaction which may result in a given case. Therefore, in the absence of definite contraindications, early operation is indicated. At operation, every effort should be made to avoid contaminating the peritoneal cavity. Whether cholecystotomy or cholecystectomy is done at the first operation, depends upon the conditions found. If possible, cholecystectomy is preferred over cholecystotomy. In either case drainage is essential in order to protect the peritoneum against bacterial infection or leakage of bile. Because of the likelihood of recurrence in those patients subjected to cholecystotomy, it should be performed some time after the acute infection has subsided.

Acute pancreatitis results from obstruction to the outflow of pancreatic secretion through its duct. While the relationship between gallstones and the disease is not entirely clear, it is generally recognized that they at least predispose to its development. Gallstones were present in all but one of our cases. Whatever the relationship may be, it is logical to remove a diseased gallbladder in order to prevent some cases of acute pancreatitis which has an extremely high mortality rate.

It is estimated that carcinoma of the gallbladder accounts for eight to ten per cent of all deaths due to cancer. In this series, it was the cause of death in seven of the twenty-nine patients who died of gallbladder disease. While controversial, many believe that there is some relationship between chronic cholecystitis, cholelithiasis and the development of cancer. Because of the frequent association (60 to 100 per cent) of calculi and cancer, it is only natural to theorize that the mechanical irritation, producing erosions and attempts to repair by the mucosa, predisposes to malignant change. Another theory is that chronic cholecystitis also accompanied by a chronic regenerative process, is the precursor of cancer. Probably both factors, as well as some that are unknown, play a part. Whatever may be the solution of this problem, it seems that a practical method of preventing this type of cancer, is to remove diseased gallbladders as soon as they are detected. Graham⁴ has stated, "From the standpoint of cancer prevention, it would seem our duty to inform patients with gall stones that, in general, they have a greater chance of dying from carcinoma of the gallbladder than they would have by a properly performed operation."

SUMMARY

The analysis of this short series shows the high incidence of gallbladder disease in patients over twenty years of age. Often relatively silent, at times it is a distinct menace to life. The more serious complications have been briefly discussed. Early removal in the absence of definite contraindications is advocated as a means of preventing the three most serious complications, peritonitis, acute pancreatitis and carcinoma of the gallbladder.

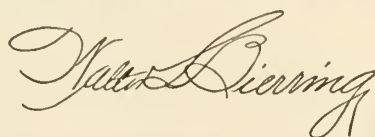
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DUES FOR 1940

Dues should be received for 1940 before February 1. Maintain your state membership and send a check to your county secretary at once!

STATE DEPARTMENT OF HEALTH



NEW PNEUMONIA FILM IN IOWA

A new film dealing with diagnosis and treatment of pneumonia was shown at a series of medical meetings in eastern Iowa from December 11 to 14. The film, beautifully photographed, was prepared under the direction of Norman Plummer, M.D., of New York, instructor in medicine, Cornell University Medical College, and was presented by F. E. Schmidt, M.D., of Chicago.

Medical meetings for showing of the film and discussion of pneumonia were held in the following cities: Dubuque, Decorah, Mason City, Marshalltown, Manchester, Iowa City, Cedar Rapids, and Burlington. Total attendance was over 600; many of the nurses from local hospitals were present at the meetings in Marshalltown and Burlington.

The State Department of Health extends appreciation to the presidents and secretaries of the various county medical societies for their interest and efforts in connection with arrangements for these special meetings on the subject of pneumonia.

PNEUMONIA BOOKLET

A booklet entitled "Diagnosis and Treatment of Pneumococcus Pneumonia" has recently been prepared by the Department's Advisory Committee on Pneumonia Control. Copy of the booklet was mailed the first week in January to all physicians of the state.

MEASLES—INCIDENCE AND MORTALITY IN IOWA

Although epidemic occurrence of common or red measles was reported from many counties of the state during 1938 and 1939, it is expected that the maximum prevalence, affecting the state as a

whole, will develop during the early months of 1940. The last major outbreak of measles reached its peak in 1935, with over 21,000 reported cases and 151 recorded deaths.

Occurrence and Distribution of Cases.

Measles is a striking example of a communicable disease which develops major proportions in cycles of from three to five years. In contrast with the widespread epidemic of 1938, the years 1936 and 1937 were non-epidemic seasons, total reports each year numbering below 300. Since 1937, measles has again appeared in epidemic form. Distribution of reported cases according to counties indicates that during 1938 and 1939 measles was unusually prevalent in sixty-two, or approximately two-thirds of Iowa's ninety-nine counties. On the basis of reports received during the past two years, undue occurrence of measles will be experienced in 1940 in the remaining one-third of the counties, with continued prevalence in rural and urban communities in many of the counties which began to report an unusual number of cases early in 1939.

Cases and Deaths Since 1924.

The accompanying table (Table I) lists the reported cases of measles and deaths from this cause during the sixteen-year period from 1924 through 1939. Figures for epidemic years are printed in bold face type to show the cyclic trend and to mark the contrast with the experience of years when the disease is at low ebb.

Deaths from measles as recorded during epidemic years are presented in graphic form in the accompanying chart, (Figure 1). It will be noted that measles takes a heavy toll of lives whenever prevalence of the disease is at high tide. The years 1924, 1927, 1930 and 1935 were years of maximum incidence of mortality from measles. The experience of past years, based on reported cases and death certificates, makes it appear almost

TABLE I

Measles Cases and Deaths in Iowa—1924-1939

Year	Cases	Deaths
1924	3701	262
1925	247	10
1926	4495	63
1927	10604	225
1928	895	14
1929	2154	39
1930	9894	199
1931	904	5
1932	156	3
1933	894	5
1934	8977	67
1935	21432	151
1936	205	2
1937	290	4
1938	5553	26
1939	5027	29
1940	(Through December 28) ?	(Through October) ?

certain that 1940 will be recorded as another peak year of mortality caused by measles.

The study of communicable disease cases as reported from year to year and over a period of years, gives added appreciation of the importance of fairly complete reporting of cases. Control and

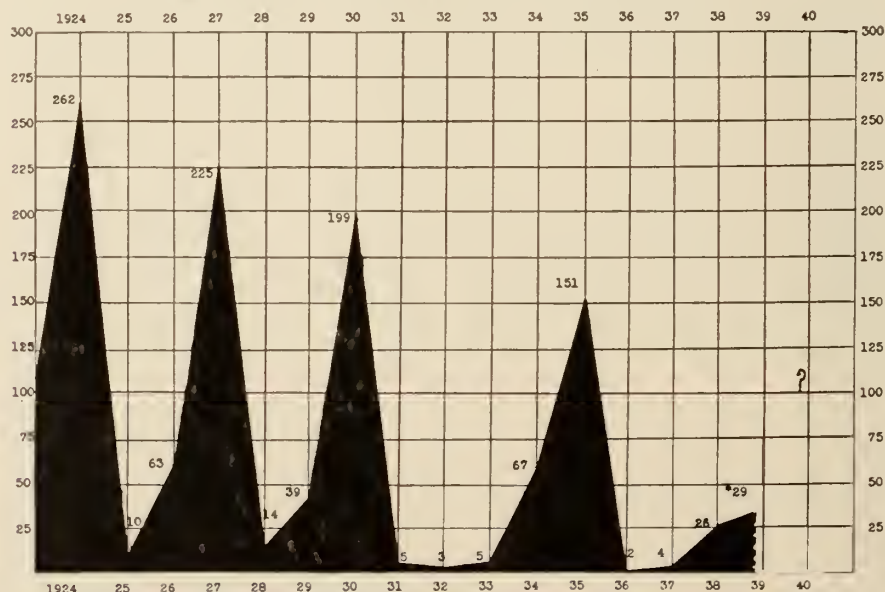
preventive measures are intimately related to the notification of communicable diseases. The department enlists continued interest and support of attending physicians, local, district and county health officers, public health nurses, visiting nurses and families, in order to render more complete the reporting of cases.

PREVALENCE OF DISEASE

	Nov. '39	Oct. '38	Nov. '38	Most Cases Reported From
Diphtheria	32	74	118	Clinton, Jackson, Black Hawk
Scarlet Fever	303	205	280	Polk, Woodbury, Floyd, Scott
Typhoid Fever	2	17	45	Boone
Smallpox	34	4	30	Muscatine, Polk
Measles	73	51	180	Marion, Jones, Dubuque
Whooping Cough ..	48	61	108	Woodbury, Cerro Gordo, Humboldt
Epidemic Meningitis	3	2	1	Delaware, Poweshiek, Scott
Chickenpox	299	81	208	Linn, Montgomery, Des Moines
Mumps	154	32	30	Page, Des Moines
Poliomyelitis	62	6	1	Polk, Marion, Dallas
Tuberculosis Pulmonary	36	120	57	Henry, Woodbury
Undulant Fever ...	19	12	11	(For State)
Gonorrhea	116	163	172	(For State)
Syphilis	189	265	256	(For State)

MEASLES MORTALITY IN IOWA SINCE 1924

Deaths by years for 16 year period 1924-1939 (through October)



*Through October.

The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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A NEW YEAR AND A NEW DECADE

With the beginning of a new year it is customary to extend felicitations and expressions of good cheer on all sides. This the JOURNAL takes pleasure in doing, to its readers and to all those with whom it has been associated in 1939.

It is also customary, in most fields, to review the events of the preceding year, and to indulge in a bit of forecasting as to what the future may have in store. No deep analytic survey is necessary to establish the fact that 1939 was an eventful year in the medical world. Not only did medical discoveries reach an all-time high for a like period, but 1939 will also long be remembered as the year in which the whole pattern of medical practice, as it has existed for the last century and a half, was seriously threatened.

Unquestionably the number one position in the list of medical achievements belongs to sulfanilamide and its related compounds, sulfapyridine and sulfthiazol. The astounding success attending this new form of chemotherapy is exceeded only by the unpredictable potentialities which further research with these and related substances promises for the future. There will be little opposition to placing in second position the brilliant researches among the vitamins. The discovery of Vitamin K and its relation to the control of certain forms of hemorrhage holds a special interest for Iowa physicians, since much of the original work leading to the identification of this vitamin was carried out at the State University of Iowa, College of Medicine. Also the year 1939 seems to have established fairly well the fact that a widespread deficiency of Vitamin B₁ exists, and that the synthetically prepared thiamin chloride will relieve many nerve disorders caused by this deficiency.

Most spectacular, but of limited applicability, was the announcement that cancer growth can temporarily be retarded by refrigerating patients to a state of frozen sleep.

However, not all the advances were made in the medical branches. Surgery, too, reported successful attacks upon conditions hitherto considered beyond the scope of human aid. Chief among these was the technic developed for tying off the ductus arteriosus in patients in whom it remained patent. In properly selected cases the operation has been demonstrated to be entirely feasible and to have a surprisingly low mortality rate. The severing of certain nerves in close proximity to the spinal column to obtain relief from the symptoms of angina pectoris is another difficult surgical feat deserving of the highest commendation. As stated elsewhere in these editorial pages, 1939 has brought forth a revision in the conception of the pathologic changes produced by severe burns, and a method of treatment has been suggested which promises to yield far better results than have previously been attained.

The above summary is by no means a complete list of the accomplishments of scientific medicine in the year just passed; nor is it entirely accurate to indicate that there are discoveries which belong strictly to the preceding year. Unsung and unseen are the countless hours spent by the men and women of the medical profession in pursuit of an idea—of a vision. What we are pleased to call a discovery in the common usage of the term is something far different in actuality. Behind each so-called discovery are, all too frequently, months and even years of patient experimentation, trial and error methods, failure and success, always with one fixed aim uppermost in mind, that of accomplishing something for the benefit of mankind.

And so as we start a new year and a new decade, let us all rejoice that we belong to a profession which is united and unselfish in its determination to improve the condition of the world in which we live.

IMMUNIZATION AGAINST TETANUS

An editorial in the June, 1939 issue of the JOURNAL of the Iowa State Medical Society, discussed the technic and efficacy of active immunization against tetanus by the subcutaneous injection of tetanus toxoid. The important feature of this procedure consisted of three subcutaneous injections, at properly spaced intervals, to induce a basal active immunity, and a fourth injection at any subsequent time to raise the titer of antitoxin

in the serum to a level which is absolutely capable of protecting the patient from tetanus.

Warfield M. Firor, associate professor of surgery at Johns Hopkins University, points out that the failure of the American medical profession to protect patients from tetanus by active immunization is due either to ignorance of its existence, or from misgivings as to its efficacy. This author states without qualification, "Sufficient data have been accumulated to justify its widespread use." He urges the development of active immunity in groups of people who are unduly exposed to the risk of tetanus; for example, farmers, children, the military forces, and some industrial workers. The ability of the patient to respond to a fourth injection is known to exist for at least five years after the preparatory basal injections, and it is probable that it exists throughout the life of the patient. The purified alum precipitate is more efficacious than the plain toxoid. There are no undesirable effects other than slight induration and soreness at the site of inoculation.

Dr. Herman Gold has developed a distinct improvement in the technic of administration of toxoid. He has demonstrated that after two subcutaneous injections a patient will respond to intranasal instillations of toxoid just as promptly as he will to additional subcutaneous injections. Gold has replaced the third subcutaneous inoculation by two injections into each nostril of 0.1 of a cubic centimeter of a suspension of a highly purified and concentrated toxin in glycerin. The instillation should be repeated successively for two or three days.

The recommended procedure, according to Firor, consists of the following steps:

1. Preparatory inoculation of 1.0 cubic centimeter of alum precipitated toxoid subcutaneously.
2. From six weeks to three months later, a second similar inoculation.
3. Six weeks later, 0.1 of a cubic centimeter of the purified toxin suspension in each nostril for two days.

One week after such treatment the individual will have an effective active immunity which will be maintained for a period of three months to many years. Thereafter, the nasal instillation may be employed after every suspicious injury, or an effective titer may be sustained by repeating the instillation every three months.

Experimental work is now being done to determine whether it is possible to substitute the intranasal instillations for the preparatory subcutaneous injections. The simplification of im-

munization procedures would prove a great help in the prevention of disease. It appears obvious that active immunization against tetanus is a reliable procedure and that it should be employed in selected groups of individuals by the family physician or the industrial surgeon.

MODERN THERAPY OF BURNS

The modern therapy of burns has materially reduced the mortality rate, but in addition it has contributed to the comfort of the patient, has expedited recovery, and has lessened the crippling due to scar tissue contracture.

Since Davidson in 1925 introduced the use of tannic acid for the treatment of burns, this method or some modification of it, has become the standardized mode of therapy. Bettman recommends the use of ten per cent silver nitrate in addition to tannic acid. In certain circles gentian violet is applied either alone or in conjunction with tannic acid. Whichever method of local treatment of the diffuse burn is employed, it must be emphatically pointed out that it is the obligation of the physician to treat the patient as well as the destroyed tissue. The chief cause of death in the extensive burn is shock, and if this phase of treatment is neglected the results will be unhappy.

The intelligent management of the severe burn necessitates an understanding of the disturbed physiology which accompanies this critical state. The exact mechanism by which shock is produced is still questionable, but experimental and clinical study indicates that diffuse capillary damage due to heat results in vascular stasis and loss of blood plasma. Within twenty-four to forty-eight hours from the onset of the burn there develop hemoconcentration, a loss of blood plasma and blood chlorides, and according to Davidson, a hypoproteinemia.

In the treatment of shock accompanying burns it has been common practice to force liquids by mouth and parenterally. With a better understanding of the blood chemical changes it is now recognized that the indiscriminate administration of fluids increases the loss of blood plasma and increases the degree of shock, in some cases producing water intoxication, edema and convulsions. In view of the disturbed physical and chemical state of the blood in burn shock, immediate and repeated transfusions of whole blood or of blood serum are indicated. Water and saline should be given in moderate quantities; dextrose should be given freely.

The modern therapy of burns is based on an understanding of the basic physical and chemical

changes occurring in the blood. Tannic acid treatment of the skin and repeated blood transfusions constitute the immediate plan of attack.

DO YOU WANT TO BECOME A DOCTOR?*

Emerging from a maze of such perplexing problems as premedic preparation, choice of medical school, personal fitness, cost of medical education, finding a location, city versus country practice, the specialties, socialistic trends and the future of medicine, there appears to the high school graduate or junior college student, like a spectre, the disturbing question, "Have I chosen wisely in my life's work?" In a large measure, the student's decision to enter the medical profession is determined by the capacity of the universities and medical schools to meet these problems. At no time in the history of education have our higher institutions of learning been faced with greater problems than today. The economic, social and political uncertainties and cross currents would weaken our educational system if we would permit it. Our schools, therefore, must qualify as dignified institutions of learning; they must become essential cultural foundations where academic integrity and influence can be preserved, not merely decorative schools of professional training.

In the past, we have ardently wished for some infallible method by which we might recognize the unfit in their early student days, that we might turn them back from medicine—some test which would tell us how many students, in truth, will become successful surgeons, internists, specialists or what is most desirable in all young physicians, general practitioners. Thus, it would seem that the student's first year might be one of probation, after which his fitness to continue the course might be impartially judged. A medical educational system errs egregiously when young men are permitted to enter the profession for which they have no special aptitude.

However, as a result of the untiring work and forward-looking spirit of the medical profession, and more directly through the efforts of the Council on Medical Education and Hospitals, the Association of Medical Colleges, the Federation of State Medical Boards, and the Committee on Medical Education and Licensure, examining boards

for the specialties and allied organizations have been established. Minimum standards for medical practice have been set, medical colleges classified, entrance requirements raised, and full time instructors in basic sciences and clinical subjects are now employed. Furthermore, the correlation of the pre-clinical with clinical subjects, the selection of a carefully balanced curriculum which includes the psychobiologic and cultural subjects, and not least of all a scrutiny of the social, intellectual and moral qualifications of the premedic student, prepare the modern graduate to fulfill his obligation to humanity.

In regard to the future of medicine, we are in accord with the author's optimism. Needless to say, we will not all travel the same road; a small group will be interested in pure research; a larger group practicing applied scientific methods will be no less, investigators; a majority will perhaps carry on the intrinsic purpose of medicine, the relief of suffering and the prevention of disease. The doctor of the future will be better trained in science and human understanding, an intelligent skeptic, eager to dissociate scientific facts from worn-out theories. Unhampered by fixed ideas he will develop into a leader in the pursuit of the essential purpose of medicine.

Throughout the chapters of one of the volumes in *Vocational Guides*, entitled "Do You Want to Become a Doctor?", the author, Dr. Morris Fishbein, has, in clear and simple language, given an abundance of information which will not only enable the young man to make an appraisal of his own qualifications and to choose wisely his medical school, but also having determined upon a medical career, to find inspiration for the task. The diction is commendable in that it is readily understandable and appealing to the young student for whom it was written. The chapters on "Preparation for Medical School," "Choice of a Medical School," "The Specialist," and "On Beginning Practice" are especially helpful. The discussions on "The Future of Medical Practice" and "The Contribution of Medicine to Public Welfare," will do much to direct the young impressionable students from the devastating influences of socialistic tendencies in medicine.

Had Dr. Fishbein done nothing more than elaborate on the foreword quotations, "The Physician and Surgeon" (Osler), "The Doctor's Avocation" (Osler) and "Medical Ethics" (Percival), he would have rendered a great service to the young men who are contemplating entering the practice of medicine.

*Editor's Note: This editorial constitutes a review of Dr. Morris Fishbein's publication "Do You Want to Become a Doctor?" However, the reviewer, Dr. E. M. Myers, has covered this increasingly important subject so thoroughly that the review merits consideration in our editorial section. The volume is published by the Frederick A. Stokes Company of New York.

Postoperative Pneumonia*

JAMES E. KAHLER, M.D., Des Moines

Pathologist, Iowa Methodist Hospital

In the past decade considerable attention has been paid to pneumonias developing after surgical procedures. The incidence of this complication has been variously estimated at from 0.5 to 10.5 per cent, being most frequent after abdominal operations and carrying with it a mortality of 40 to 70 per cent.

Many theories as to the etiology of this condition have been advanced and it is probable that each may be an explanation for the development of the lesion in a certain number of instances while none of them explains all cases. Among the more uncommon etiologic factors are oral sepsis, aspiration of infective material and suppurative embolic phenomena. The nervous reflex theories (paralysis of the diaphragm, spastic contraction of the respiratory muscles, toxic paralysis of the cough reflex, the bronchoconstrictor theory and the vasomotor reflex theory) are all incomplete explanations. Probably the most frequent cause is the development of postoperative atelectasis, with sublethal shock the second most important factor.

In addition to bronchial occlusion and sublethal shock, infective organisms must be present to produce the pneumonia. These organisms may be present in the bronchial tree and be permitted to act because normal lung defenses are inhibited or because local resistance is lowered. However, a much too frequent source of the infectious material is the presence of unrecognized residual foci from previous infection. In many cases of postoperative pneumonia, areas of old organized pneumonia can be found which probably serve as the source of the present infection.

Postoperative lobar pneumonia is uncommon and a patchy lobular pneumonia the rule. The most frequent causative organisms are the pneumococcus and streptococcus, in that order. The gross and microscopic lesions which are produced have been described previously.

Because the incidence of postoperative pneumonia is higher than it should be, and because we are unable to recognize minute residual infective foci in the lung, it may be of value to use the sulfonamide drugs prophylactically, in addition to

hyperventilation with carbon dioxide and oxygen at the end of each operation, and to use carbon dioxide thereafter as necessary to promote deep respiration. Frequent postural changes to promote bronchial drainage and the usual methods to combat sublethal shock are advisable.

FOURTH NATIONAL SOCIAL HYGIENE DAY

National Social Hygiene Day, one of America's leading annual public health events, will be observed for the fourth time on February 1, 1940, according to an announcement by Dr. Walter Clarke, executive director of the American Social Hygiene Association. Plans for the annual event presage more than 5,000 community and regional meetings over the country and include, among other features, the release by the association's National Anti-Syphilis Committee of a new sound motion picture on syphilis entitled "With These Weapons."

The number of cases of syphilis under treatment in the United States has greatly increased during recent years, and blood tests reached a new high in 1939, numbering almost 11,000,000. Additional progress is seen in the fact that nineteen states now require examinations for syphilis in applicants for marriage licenses, while seventeen states demand similar tests for expectant mothers.

National Social Hygiene Day affords a yearly occasion when the public and the professions may gather together to review progress against syphilis and to map anew the strategy for another year.

It is expected that the year ahead will see a marked decline in the number of medical quacks, so-called "men's specialists" and certain druggists who diagnose and treat syphilis and gonorrhea. These exploiters have taken advantage of victims of syphilis and gonorrhea for too long a time. Dr. Clarke says "Their activities have increased apace with the extension of public interest in these diseases, and their flagrant operations have shocked communities in many areas. Fourth Social Hygiene Day will focus attention on this important obstacle to complete syphilis control, although other aspects of the problem will not be neglected."

*Editor's Note: This is the fourth in a series of editorials prepared upon our request. Previous articles appeared in the October, November and December, 1939, issues.

WOMAN'S AUXILIARY NEWS

MRS. FRED MOORE, *Chairman of Press and Publicity Committee*
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HEALTH ESSAY CONTEST

The Seventh Annual Health Essay Contest, sponsored by the Woman's Auxiliary to the Iowa State Medical Society and the Speakers Bureau of the Iowa State Medical Society, has been announced as opening January 10. The subject for this year is "The Road to Health", and points to be stressed in developing the subject are personal hygiene, sanitation, health hazards, recreation and rest. The contest closes March 15, 1940, by which date all essays must be in the hands of the contest committee chairman, Mrs. W. A. Seidler of Jamaica. Announcement of the winners will be made on April 1, 1940.

Any high school student in Iowa is eligible to participate in the contest, and the essay should not exceed 1,200 words in length. The four best essays from each school may be submitted. They should be typewritten and double spaced. The student's name should not appear on the essay, but the participant's name, town, county, grade and superintendent's name should be typed on a small piece of paper and clipped to the essay. Each article received by the contest committee will be given a number and no judge shall know to which student that number has been assigned.

As in the past, prizes will be awarded as follows: first prize, \$20.00; second prize, \$10.00; third prize, \$5.00; and ten one dollar prizes to the next ten highest ranking essays. An additional prize to the winner of first place will be a trip to a centrally located broadcasting station to present the winning essay over the radio. Schools whose essays win first, second and third places will receive subscriptions to *Hygeia* for one year.

Preliminary elimination will be made by members of the Woman's Auxiliary. The final judges will be:

1. A member of the State Department of Public Instruction
2. A member of the State Department of Health
3. A member of the Iowa State Medical Society
4. Two members of the Woman's Auxiliary to the Iowa State Medical Society.

Additional information may be secured from school superintendents or English teachers, or by corresponding with Mrs. W. A. Seidler of Jamaica, Iowa.

Your health essay contest committee directs the

attention of all Auxiliary members to the above announcement. We feel that this is a very worthy project because of the educational nature of the contest, and that it is one which merits the active cooperation of the members. Every physician's wife should assume responsibility for creating an interest in the contest in her immediate vicinity. Not only do the children who spend hours reading and writing these essays benefit by an increased knowledge of the general subject of health, but the parents in these homes acquire a more comprehensive and understanding viewpoint of medicine and the ideals of the medical profession.

Mrs. W. A. Seidler, Chairman
Health Essay Contest Committee

HEALTH BROADCASTS

The radio program, "Medicine in the News", sponsored by the American Medical Association, is presented every Thursday afternoon at 3:30 central standard time, over the facilities of the National Broadcasting Company. Iowa stations carrying this program are KSO in Des Moines, and WMT in Cedar Rapids. These programs consist of dramatizations taken from current medical activities, and are especially adapted for use in classrooms and for meetings of Parent-Teachers Associations and various other women's organizations.

No better means than the radio could be found to acquaint the general public with the rapid strides scientific medicine has made during the past few decades. Listeners of these programs cannot help but be impressed with the rôle which American medicine has assumed. These thrilling adventures in the science of medicine are the best possible answers to some of the unjustified criticism which has been directed toward the medical profession in the past few years.

The programs are being broadcast, but obviously they will not accomplish their purpose if they are not heard, and members of the Auxiliary can do much to assist in making this project a success. Inform your clubs, your friends and your schools of this excellent opportunity to learn more of the fascinating subject of medicine. Your interest and enthusiasm will be contagious. You will be doing your part and members of your community will be receiving information and facts which they earnestly desire.

Old Age Assistance Grants

The last session of the Iowa General Assembly passed a provision that recipients of old age assistance might apply for and receive an additional allowance, up to five dollars a month, for the medical care of chronic medical conditions. This act is now in force. On December 31, more than 3,000 aged people had qualified for the supplementary amount. The total number who will request this medical grant is, as yet, merely a conjecture. It is believed, however, that at least 15,000 people will eventually receive a monthly sum for the treatment of chronic medical ailments. The amount to be expended will reach a staggering total and we, as medical men, must be interested in keeping it within reasonable limits.

The money cannot be paid directly to the doctor because there is a federal regulation that it must go to the recipient, but the allotted sum must be used for medical services, and it is the duty of the county investigator to make the recipient understand this. To acquire the medical allowance the aged beneficiary must have his doctor fill out a PA-M-1 form, commonly called the Medical Report. It will be to the advantage of the old person, the state office, and the doctor himself if he makes careful and complete reports. We need all the pertinent information if we are to deal fairly with everyone concerned. Does the patient really need treatment or does he merely want more money? Is there any record of his medical expense for chronic illnesses during the past year? In estimating expense think only of the total amount given. The medical allowance is a specified monthly sum given for a certain period of time, usually twelve months. Thus, if your patient receives \$2.50 a month for medical care, in reality he is being given \$30.00 for a year's treatment for the diagnosed disease you have mentioned. Too many doctors are prescribing expensive proprietary medicines. Prescriptions should be limited to drugs found in the Pharmacopeia or National Formulary.

In many cases, this extra allotment for medical care, plus the one dollar included in the base sum for medical needs, will not be sufficient to cover the medical expense. The fact that the old age recipient receives, through the State Board of Social Welfare, some extra money for medical care does not relieve local authorities from their obligations if the sum so allotted is not sufficient. When a recipient does not use the money allotted for medical expense the fact should be reported. In such a case, the allowance will be discontinued and the money used for another case. Any governmental agency, large or small, which concerns itself actively in health matters, is practicing socialized medicine, whether the action is beneficent or otherwise. This act is a type of socialized medicine. The Board of Social Welfare, wisely, wants it administered by and through medical men. For the sake of the doctors who come after us, for the sake of the position which medicine must hold in the future, we must make this program a success now. We ask the help of each of you in making this project work to the advantage of the aged sick.

The procedure is new. We have no precedents to guide us. The Medical Director and Medical Consultant are ordinary practicing physicians. We are human and not infallible. If errors in judgment occur, write us, giving full particulars of the case. Your constructive criticism will always be welcomed and considered. We shall be glad to explain the operation of this program if there are any questions concerning it.

In return we can promise that the Board of Social Welfare and the Director of Public Assistance are and will be fair and honest with the doctor. They are deeply interested in seeing that the money is expended wisely and for those cases where it will accomplish the most. We will also promise that no favoritism will be shown, that the patient will be treated with just consideration, and that the rights of the aged person, the taxpayer and the doctor will be given equal and careful consideration.

H. J. MCCOY, M.D.
Medical Director.

CHANNING G. SMITH, M.D.
Medical Consultant.

SOCIETY PROCEEDINGS

Black Hawk County

Edward H. Hatton, M.D., of Chicago, addressed a joint meeting of the Black Hawk County Medical Society and the Waterloo Dental Society, Tuesday, December 5, on Infection as Seen in the Tissues of the Mouth. Officers elected at the business session of the medical society are as follows: Dr. Howard J. Hartman, president elect; Dr. Harold O. Gardner, vice president; Dr. Craig D. Ellyson, secretary; Dr. George C. Murphy, treasurer; Dr. E. E. Magee, delegate; and Dr. Frederick H. Lohman, alternate delegate. Dr. Elmer I. Dunkelberg, president elect last year, assumed the presidency. All officers are of Waterloo.

Boone County

Dr. M. M. Shaw of Madrid was named president of the Boone County Medical Society at the annual meeting of that organization held Wednesday, December 20, at the Holst Hotel in Boone. Other officers are Dr. M. A. Healy of Boone, vice president; Dr. B. T. Whitaker of Boone, secretary and treasurer; Dr. A. B. Deering of Boone, delegate; and Dr. Robert S. Shane of Pilot Mound, alternate delegate.

Bremer County

The annual election of officers for the Bremer County Medical Society was held Monday, December 18, at Mercy Hospital in Waverly with the following results: Dr. O. C. Hardwig of Waverly, president; Dr. P. J. Amlie of Tripoli, vice president; Dr. P. K. Graening of Waverly, secretary and treasurer; Dr. L. C. Kern of Waverly, delegate; and Dr. Graening, alternate delegate.

Cerro Gordo County

The annual meeting of the Cerro Gordo County Medical Society was held Tuesday, December 5, in Mason City, and the following officers elected for 1940: Dr. C. E. Chenoweth, president; Dr. B. R. Weston, vice president; Dr. J. E. Houlahan, secretary; Dr. Draper L. Long, treasurer; Dr. H. D. Fallows, delegate; and Dr. H. W. Morgan, alternate delegate. All officers are of Mason City.

The regular monthly scientific session of the society was held Tuesday, December 12, at the Hotel Hanford in Mason City. John H. Randall, M. D., of the State University of Iowa, College of Medicine, Iowa City, spoke on Vaginal Bleeding. A revised moving picture on The Management of Pneumonia, dealing with the uses of sulfapyridine and serum therapy, was presented by F. E. Schmidt, M.D., of Chicago.

Jay E. Houlahan, M.D., Secretary

Crawford County

The Crawford County Medical Society met in annual session at the Hotel Denison in Denison, Wednesday, December 13, and elected the following officers for the ensuing year: Dr. F. N. Rowe of Denison, president; Dr. E. J. Maire of Vail, vice president; Dr. E. M. Mark of Manilla, secretary and treasurer; Dr. C. H. Fee of Denison, delegate; and Dr. T. L. Vineyard of Dow City, alternate delegate.

Davis County

Officers chosen by the Davis County Medical Society to head the group during the coming year are as follows: Dr. George L. Prentice of Troy, president; Dr. J. G. Stone of Bloomfield, vice president; Dr. H. C. Young of Bloomfield, secretary and treasurer; Dr. C. H. Cronk of Bloomfield, delegate; and Dr. C. D. Fenton of Bloomfield, alternate delegate.

Decatur County

Two physicians from St. Joseph, Missouri, furnished the scientific program for the meeting of the Decatur County Medical Society held Thursday, December 21, at the Decatur County Hospital in Leon. L. Paul Forgrave, M.D., discussed Arthritis from the Surgical Standpoint, and Winton T. Stacy, M.D., presented an illustrated lecture on The Toxemias of Pregnancy.

Results of the annual election of officers are: Dr. J. W. Wailes of Davis City, president; Dr. W. Norman Doss of Leon, vice president; Dr. M. W. Rogers of Leon, secretary and treasurer; Dr. G. P. Reed of Davis City, delegate; and Dr. E. E. Gamet of Lamoni, alternate delegate.

M. W. Rogers, M.D., Secretary

Dubuque County

The annual election of officers for the Dubuque County Medical Society was held Tuesday, December 12, at the Hotel Julien in Dubuque, with the following results: Dr. J. C. Kassmeyer of Dubuque, president; Dr. W. E. Costello of Dubuque, first vice president; Dr. W. R. Langford of Epworth, second vice president; Dr. John J. Mueller of Dubuque, secretary; Dr. F. W. Meyers of Dubuque, treasurer; Dr. Donald C. Konzett of Dubuque, delegate; and Dr. Roy I. Theisen of Dubuque, alternate delegate.

Fayette County

On Tuesday, December 5, members of the Fayette County Medical Society met in regular session at the Rex Hotel in West Union. C. C. Hall, M.D., of Maynard, spoke on The Use and Abuse of Narcotics; and H. P. Moen, M.D., of West Union, discussed the Surgical Treatment of External Hemorrhoids. Offi-

cers elected at the business session include Dr. Howard Risk of Oelwein, president; Dr. C. N. M. Hazard of Arlington, vice president; and Dr. J. P. Gallagher of Oelwein, secretary and treasurer.

Greene County

The annual election of officers of the Greene County Medical Society was held at the Woman's Club in Jefferson, on Thursday, December 14. Dr. James M. Jackson of Jefferson was re-elected president, and Dr. John R. Black, also of Jefferson, was re-named secretary and treasurer. A seven o'clock dinner, attended by members, their wives and guest doctors from surrounding counties, preceded the program of the evening. Speakers were from the pediatrics department of the State University of Iowa, College of Medicine, Iowa City. Robert L. Jackson, M.D., addressed the group on The Care of the Child with Diabetes Mellitus or Rheumatic Fever; and A. J. Greteman, M.D., spoke on Orthopedic Management of Infantile Paralysis.

J. R. Black, M.D., Secretary

Jasper County

Dr. Roy Stone of Sully was named president of the Jasper County Medical Society at the annual meeting of that organization, held in Newton at the Skiff Memorial Hospital, Tuesday, December 5. Other officers are: Dr. Thomas D. Wright of Newton, vice president; Dr. E. F. Besser of Newton, secretary and treasurer; Dr. James C. Hill of Newton, delegate; and Dr. H. P. Engle of Newton, alternate delegate.

Jefferson County

The Jefferson County Medical Society met Thursday, December 21, at the Hotel Leggett in Fairfield, and elected the following officers for the ensuing year: Dr. Ira N. Crow of Fairfield, president; Dr. R. G. Swinney of Richland, vice president; Dr. John W. Castell of Fairfield, secretary and treasurer; Dr. J. S. Gaumer of Fairfield, delegate; and Dr. Crow, alternate delegate.

Johnson County

The regular meeting of the Johnson County Medical Society was held Wednesday, December 6, at the Hotel Jefferson in Iowa City. The scientific program consisted of a paper by R. H. Flocks, M.D., assistant professor of urology, State University of Iowa, College of Medicine, on The Non-Surgical Treatment of Urinary Stone with Some Prophylactic Considerations. Officers for 1940 elected at the annual business session are: Dr. Andrew H. Woods, president; Dr. J. William Dulin, vice president; Dr. Robert J. Prentiss, secretary and treasurer; Drs. E. M. MacEwen, George C. Albright and A. W. Bennett, delegates; and Drs. Milford E. Barnes, William F. Mengert and A. L. Sahs, alternate delegates.

Keokuk County

The annual election of officers for the Keokuk County Medical Society was held Tuesday, December 19, in Sigourney, with the following results: Dr.

William Pfannebecker of Sigourney, president; Dr. J. L. Doyle of Sigourney, vice president; Dr. John Maxwell of What Cheer, secretary and treasurer; Dr. C. L. Heald of Sigourney, delegate; and Dr. D. L. Grothaus of Delta, alternate delegate.

Lee County

The regular meeting of the Lee County Medical Society was held Wednesday, December 13, at the Hotel Anthes in Fort Madison. The following program was presented by physicians from St. Louis, Missouri: Psychosomatic Relationships in Constitutional Disease, Robert E. Britt, M.D.; Uterine Prolapse (non-operative and operative), Leo J. Hartnett, M.D.; The Doctor's Role in the Growth and Development of the Child, Peter Danis, M.D.; Arthritis: Differential Diagnosis, R. O. Muether, M.D.; and The Use of Sulfanilamide in Genito-Urinary Infections, Alvin E. Vitt, M.D. Officers elected at the business session include Dr. T. L. McKee of Keokuk, president; Dr. R. S. Reimers of Fort Madison, vice president; Dr. Harold F. Noble of Fort Madison, secretary and treasurer; and Dr. B. J. Dierker of Fort Madison, delegate.

H. F. Noble, M.D., Secretary

Linn County

The Linn County Medical Society will entertain Ralph Waters, M.D., of Madison, Wisconsin, as its guest speaker for the meeting to be held in Cedar Rapids, Thursday, January 11. Dr. Waters will speak on The Dynamics of Respiration.

The guest for the February meeting will be Dr. Paul Titus of Pittsburgh, Pennsylvania, and members from adjoining counties are cordially invited to attend.

T. F. Hersch, M.D., Chairman
Program Committee

Lucas County

Dr. Albert L. Yocom of Chariton was named president of the Lucas County Medical Society at a meeting held in Chariton, Tuesday, December 12. Dr. J. B. Robb of Chariton was elected vice president, and Dr. G. F. Niblock of Derby was re-elected secretary and treasurer.

Marion County

Wendell M. Willett, M.D., of Des Moines, furnished the scientific program for the Marion County Medical Society when that group met in Knoxville, Thursday, December 14. Dr. Willett spoke on The Fundamentals of Diagnosis and Treatment in Dermatology. The following officers were elected to serve during 1940: Dr. C. I. Fox of Pella, president; Dr. H. E. White of Knoxville, vice president; Dr. J. R. Wright of Knoxville, secretary and treasurer; Dr. H. L. Bridgeman of Knoxville, delegate; and Dr. F. M. Roberts of Knoxville, alternate delegate.

Marshall County

The Marshall County Medical Society met at the Hotel Tallcorn in Marshalltown, Tuesday, December

5, at which time the following program was presented: Precancerous Dermatoses, Oliver S. Ormsby, M.D., of Chicago, Illinois; and Diseases of the Colon, Rectum and Anus, R. Russell Best, M.D., of Omaha, Nebraska. Election of officers resulted as follows: Dr. L. H. Launder of Marshalltown, president; Dr. F. J. Swift of Marshalltown, vice president; Dr. Rodney C. Wells of Marshalltown, secretary and treasurer; and Dr. A. D. Woods of State Center, delegate.

Muscatine County

On Thursday, December 21, members of the Muscatine County Medical Society met at the Benjamin Hershey Memorial Hospital in Muscatine. During the business session a resolution was passed, expressing the appreciation and thanks of the society to the Elks Lodge of Muscatine for their gift of the new respirator to the city of Muscatine. After the dinner, John D. Koucky, M.D., of Chicago, associate professor of surgery, University of Illinois, College of Medicine, spoke on The Diagnosis of Acute Abdominal Pain, and showed some clinical cases. Dr. Koucky's address was instructive and educational, and those in attendance were well pleased with the subject material and the manner in which it was presented.

On Thursday, December 28, a special meeting of the society was held, and the following officers elected for the coming year: Dr. T. M. Miller, president; Dr. E. O. Muhs, vice president; Dr. J. L. Klein, Jr., secretary and treasurer; Dr. L. C. Howe, delegate; and Dr. G. A. Sywassink, alternate delegate. All officers are of Muscatine.

E. O. Muhs, M.D., Secretary

Osceola County

The annual meeting of the Osceola County Medical Society was held Tuesday, December 12, at the Windsor Hotel in Sibley. After the 6:30 dinner, L. H. Heetland, M.D., of Sibley, spoke on Looking Backward in Medicine. The paper was very much enjoyed and discussed by those present. The following officers were elected for the ensuing year: Dr. C. C. F. Bosch of Melvin, president; Dr. George S. Kuntz of Sibley, vice president; Dr. F. P. Winkler of Sibley, secretary and treasurer; Dr. Heetland, delegate; and Dr. H. B. Paulsen of Harris, alternate delegate.

F. P. Winkler, M.D., Secretary

Sac County

Seventeen members of the Sac County Medical Society met Thursday, December 7, at the Hotel Park in Sac City. A brief account was given of the immunization campaign conducted in the county, after which Frank P. Murphy, M.D., of Omaha, Nebraska, professor of obstetrics at Creighton University School of Medicine, presented the scientific program. Dr. Murphy's paper on Dystocia in the First Stage of Labor was well received, and a most interesting discussion followed.

H. N. Neu, M.D., Secretary

Scott County

An open meeting, to which the general public was invited, was sponsored by the Scott County Medical Society, Tuesday, December 5, at the Davenport High School Auditorium. The speaker for the occasion was Mr. J. G. Crownhart, secretary of the Wisconsin State Medical Society, who discussed State Medicine, and the manner in which it functions in European countries which he visited recently. Mr. Crownhart is the author of a book entitled "Sickness Insurance in Europe."

P. E. Gibson, M.D., Secretary

Sioux County

Members of the Sioux County Medical Society met in Alton, Tuesday, December 12, and heard S. A. Carnazzo, M.D., of LeMars, read a paper on Varicose Veins, and John G. DeBey, M.D., of Orange City, speak on Fractures. Officers elected at the business session are: Dr. DeBey, president; Dr. F. F. Null of Hawarden, vice president; and Dr. C. B. Murphy of Alton, secretary and treasurer.

Story County

Newly chosen officers of the Story County Medical Society, elected at the annual meeting held Thursday, December 21, at the Iowa Sanitarium in Nevada, include Dr. G. E. McFarland, Jr., of Ames, president; Dr. K. C. Piercy of Maxwell, vice president; and Dr. E. B. Bush of Ames, secretary and treasurer.

Van Buren County

The Van Buren County Medical Society held its annual election of officers in Keosauqua, Monday, December 11, with the following results: Dr. Roscoe Pollock of Douds-Leando, president; Dr. D. G. Matthews of Milton, vice president; Dr. C. R. Russell of Keosauqua, secretary and treasurer; Dr. H. J. Gilfillan of Cantril, delegate; and Dr. E. E. Sherman of Keosauqua, alternate delegate.

C. R. Russell, M.D., Secretary

Wapello County

Dr. R. J. Selman of Ottumwa was selected to head the Wapello County Medical Society for 1940, at the annual election of that organization held Tuesday, December 5, at the St. Joseph Hospital in Ottumwa. Other officers elected are: Dr. Eppie McCrea of Eddyville, vice president; Dr. Gilbert C. Struble of Ottumwa, secretary and treasurer; Dr. L. A. Taylor of Ottumwa, delegate; and Dr. C. A. Henry of Farson, alternate delegate.

Washington County

The Washington County Medical Society held its annual business meeting and election of officers for 1940, Tuesday, December 12. Dr. J. M. Lloyd was named president; Dr. T. M. Mast was chosen vice

president; and Dr. W. S. Kyle was re-elected secretary and treasurer. All officers are of Washington.

W. S. Kyle, M.D., Secretary

Webster County

The annual election of officers for the Webster County Medical Society to serve during 1940, resulted as follows: Dr. J. H. Bruce of Fort Dodge, president; Dr. S. B. Chase of Fort Dodge, vice president; Dr. A. S. McMillen of Fort Dodge, secretary and treasurer; Dr. H. E. Nelson of Dayton, delegate; and Dr. Otto N. Glesne of Fort Dodge, alternate delegate.

H. T. Larsen, M.D., Secretary

Winneshiek County

Meeting in Decorah, Thursday, December 14, members of the Winneshiek County Medical Society elected new officers to head their organization during 1940. They are as follows: Dr. L. C. Kuhn of Decorah, president; Dr. J. G. Goggin of Ossian, vice president; Dr. L. J. Hospodarsky of Ridgeway, secretary and treasurer; Dr. A. F. Fritchen of Decorah, delegate; and Dr. Goggin, alternate delegate. For the scientific program of the evening, the county chairman of the fracture committee, Dr. E. F. Hagen of Decorah, showed three motion picture reels on the management of fractures.

L. J. Hospodarsky, M.D., Secretary

Woodbury County

Dr. A. C. Starry of Sioux City was elected president of the Woodbury County Medical Society at the annual meeting held Thursday, December 7, at the Mayfair Hotel in Sioux City. Dr. R. M. Conmey of Sergeant Bluff was named vice president, and Dr. A. Q. Johnson of Sioux City was elected secretary and treasurer.

Sioux Valley Medical Society

Wednesday, January 17, 1940

Dr. Louis E. Moon of Omaha.

Dr. A. L. Sahs of the Department of Neurology, University of Iowa.

Dr. F. R. Peterson, Head of the Department of Surgery, University of Iowa.

Dr. H. R. Hildreth from the Washington University Medical School, St. Louis, Missouri.

Thursday, January 18, 1940

Dr. Ralph M. Waters, head of the Department of Anesthesia at the University of Wisconsin Medical School.

Dr. L. M. Randall, Department of Obstetrics and Gynecology, the Mayo Clinic, Rochester, Minnesota.

Dr. Leo G. Rigler from the X-ray Department of the University of Minnesota.

Dr. A. M. Snell, Department of Internal Medicine, the Mayo Clinic, Rochester, Minnesota.

Dr. Morris Fishbein of Chicago will give an address at the banquet on Wednesday evening.

PERSONAL MENTION

Dr. J. D. Parker, of Fayette, has announced the association with him in the practice of medicine of Dr. Leslie A. Carlson, formerly of Lake City. Dr. Carlson was graduated in 1933 from the McGill University Faculty of Medicine, Montreal, Quebec, Canada, and served his internship at the Colorado General Hospital in Denver. After a three year fellowship at the Mayo Foundation in Rochester, Minnesota, he located in Lake City in 1937.

Dr. John H. Peck, superintendent of the State Sanatorium at Oakdale, has been reappointed for a four-year term beginning January 1, 1940, according to a recent announcement by the Iowa Board of Control.

Dr. Walter B. Phillips, son of Dr. J. H. Phillips of Montezuma, has left Davenport, where he has been practicing for several years, and located in Montezuma.

Dr. Carl F. Jordan of the State Department of Health, Des Moines, spoke before the Newton Parent-Teachers Association Council, Tuesday, December 5, on "New Developments in the Treatment of Pneumonia, Smallpox, Diphtheria and Measles".

Dr. Clarence A. Darrow, who formerly practiced at Springville, has located in Dubuque, where he will occupy the offices of Dr. Bernard Michel, who is retiring from active practice. Dr. Darrow was graduated in 1934 from the State University of Iowa, College of Medicine, and comes to Dubuque direct from Chicago, where he has been taking special post-graduate work in surgery.

Dr. Melvin T. Johnson, of Lake Mills, spoke on "Better Health on the Farm", at the Norway Township Farm Bureau meeting held in Lake Mills, Monday, December 4.

Dr. Chauncey M. Gillespie, formerly of Garden Grove, has left that locality and moved to Melcher, where he will continue the general practice of medicine and surgery.

Dr. William H. Rendleman of Davenport addressed the Davenport Kiwanis Club, Thursday, December 14, at a noon meeting held in the Hotel Blackhawk. His subject was "After 40, What?".

Dr. Mark C. Jones, after forty-one years of medical practice in Boone, is retiring from active service. His practice will be taken by Dr. Edward S. Brewster of St. Paul, Minnesota. Dr. Brewster was graduated in 1934 from the University of Vermont, College of Medicine, Burlington, and served his internship at St. Luke's Hospital in Bethlehem, Pennsylvania.

Dr. R. B. Gibson of the State University of Iowa, College of Medicine, was guest speaker for the Fourth Annual Iowa Highway Safety Conference, held in Ames, December 8 and 9. Dr. Gibson spoke on "Intoxication Tests to Convict Drivers under the Influence of Liquor".

Dr. Marshall D. Huston of Mt. Pleasant, has located in Newton where he will be associated with Dr. Fred E. Carpenter, specialist in diseases of the eye, ear, nose and throat. Dr. Huston was graduated in 1934 from the State University of Iowa, College of Medicine, and has completed three years' special postgraduate study of the eye.

Dr. Fred L. Knowles of Fort Dodge, spoke before the night school homemaking class at the Lytton High School, Monday, December 11, on "Selection of Shoes and Their Relation to General Health".

Dr. Vernon S. Todd, who was graduated in 1936 from the State University of Iowa, College of Medicine, has located in Eldora. Dr. Todd completed his internship at the Swedish Hospital in Seattle, Washington, and comes to Eldora direct from Cashmere, Washington, where he has practiced for the past two years.

Dr. M. C. Hennessy of Council Bluffs, was guest speaker for the Tabor Parent-Teachers Association, at a meeting held in Tabor, Monday, December 18. His subject was "Cancer Control".

Dr. Milton H. Ivens, formerly of Taylorville, Illinois, has arrived in Waukon, where he has established an office. Dr. Ivens was graduated in 1935 from the University of Manitoba Faculty of Medicine, Winnipeg, Manitoba, Canada.

Dr. James P. Sharon of the Iowa State Department of Health, Des Moines, spoke before the Junior Chamber of Commerce of Perry, at a meeting held Tuesday, November 28, on "Syphilis and Its Treatment". Dr. Sharon also addressed the Rotary Club in Dubuque, on this subject, at a luncheon meeting Tuesday, December 5. He was also guest speaker for a public meeting sponsored by the Parent-Teachers Association, in Adair, Monday, December 18, at which time he spoke on the general subject of "Social Hygiene".

Dr. Marvin Wright, who for the past two years has been practicing in Newton, has left that city, and will be located in Rhinelander, Wisconsin.

DEATH NOTICES

Cruikshank, Roswell Dwight, of Goose Creek, Texas, formerly of Boone, aged sixty-three, died December 20. He was graduated in 1905 from Rush

Medical College, University of Chicago, and had long been a member of the Boone County Medical Society.

Gadd, Edson Elisha, of Des Moines, aged seventy, died December 9, after a brief illness. He was graduated in 1905 from the University of Illinois, College of Medicine, Chicago, and at the time of his death was a member of the Polk County Medical Society.

O'Keefe, Mathew Earl, of Council Bluffs, aged fifty-eight, died December 6, of coronary thrombosis. He was graduated in 1906 from Creighton University School of Medicine, Omaha, and at the time of his death was a member of the Pottawattamie County Medical Society.

Plummer, Herbert William, of Lime Springs, aged sixty-two, died December 5, following an extended illness. He was graduated in 1905 from the Keokuk Medical College, College of Physicians and Surgeons, and at the time of his death was a member of the Howard County Medical Society.

Smith, C. Colfax, of Clarksville, aged seventy-one, died December 5 of a heart ailment. He was graduated in 1904 from Northwestern University Medical School, Chicago, and had long been a member of the Butler County Medical Society.

SPEAKERS BUREAU RADIO SCHEDULE

WOI—Wednesdays at 3:45 p. m.

WSUI—Tuesdays at 4:00 p. m.

January 16—Whooping Cough, Ruth F. Wolcott, M.D.

January 23—Appendicitis, Walter F. Harriman, M.D.

January 30—Cancer, John H. Rieniets, M.D.

February 6—Arthritis, Donald F. Rodawig, M.D.

MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS AND COMMITTEES

Meeting of the Executive Cancer Committee
Wednesday, December 20, 1939

The Executive Cancer Committee of the Iowa State Medical Society met at the Hotel Fort Des Moines in Des Moines, Wednesday, December 20, 1939, at 11:00 a. m. Those present were Doctors M. C. Hennessy, chairman, D. F. Ward, A. W. Erskine, F. P. McNamara of the State Society, and L. A. Scheele of the United States Public Health Service. Dr. Scheele presented a summary of the cancer programs of various states; the committee decided to study them before determining on a program for Iowa; and the meeting adjourned at 1:30 p. m.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

References of Early American Medicine Available in the Iowa State Medical Library

It is doubtful if the members of the Iowa State Medical Society appreciate the unusual opportunities in the Iowa State Medical Library for access to medical journals published in this country one hundred and more years ago. A glimpse here and there reveals some interesting finds, such as the following:

1797—The Medical Repository Review of Medical Publications, New York, Volume I, 567 pages, conducted by Samuel L. Mitchell, M.D., professor of chemistry, Columbia College, Edward Miller, M.D., and Elihu H. Smith, M.D., physicians for the New York Hospital, containing the following articles and items. Meeting of the Medical Society of the State of Connecticut at Hartford on the second Tuesday of May, 1797 at the house of John Lee, when the following action was taken: "Whereas, Dr. Elihu Perkins, a member of this Society, having obtained a patent from under the authority of the United States, for the exclusive privilege of using and vending certain *pointed metallic instruments*, pretending that they were an invention of his own; and also, that they possess inherent powers of curing many diseases, which is contrary to the rules and regulations adopted by this Society, interdicting their members the use of nostrums; Therefore, *voted*, That the said Elihu Perkins be expelled from the Medical Society of the State of Connecticut."

John Warren, M.D.—Yellow Fever at Boston.

Benjamin Rush, M.D.—An account of the Bilious Remitting and Intermitting Yellow Fever, as it appeared in Philadelphia in the year 1794.

Dr. Alexander King—A Case of Canine Madness, which terminated fatally, at Suffield, Connecticut, November 11, 1797.

Dr. David Hosack, New York—A Case of Hydrocele Cured by Injection. (Mixture of wine and water, proportions of two parts of the former to one of the latter.)

1803—The Medical Repository, Volume VI. Dr. Joseph Priestley, L.L.D.—Remarks on Mr. Cruikshank's experiments upon cinder and charcoal. Observations on the conversion of iron into steel.

Benjamin Rush, M.D., professor of medicine in the University of Pennsylvania. Facts intended to prove the yellow fever not to be contagious, and instances of its supposed contagion explained upon other principles.

Nathaniel Potter, M.D. of Baltimore—On the Epidemic Distempers (Measles) of the year 1802.

Book Review—A Prospect of Exterminating the Smallpox, by Benjamin Waterhouse, M.D., professor of the theory and practice of medicine in the University of Cambridge (Boston).

1804—The Philadelphia Medical and Physical Journal, Volume I, edited by Benjamin Smith Barton, M.D., professor of materia medica, University of Pennsylvania. A number of articles on yellow fever; typhus (gaol) fever; a case of tetanus cured by mercury; and the poisonous effects of stramonium. This journal was succeeded in August, 1827, by the American Journal of Medical Sciences of which the Iowa State Medical Library is the possessor of Volume I. On page 156 appears the article by Valentine Mott, M.D., of New York, on "The Successful Ligature of the Common Iliac Artery."

1809—The New York Medical and Philosophical Journal and Review, Volume I, contains an interesting book review on a Treatise on the Anatomy, Pathology and Surgical Treatment of Aneurism, with engravings, by Antonio Scarpa, professor of anatomy and practical surgery in the University of Parvia. The review was translated from the Italian by John Henry Wishart, F.R.C.S., Edinburgh, 1808.

1811—The Eclectic Repertory and Analytical Review, Medical and Philosophical, Volume I, edited by a Society of Physicians, Philadelphia, contains the following articles:

Edward Jenner, M.D., F.R.S.—Observations on the Distemper in Dogs; and Two Cases of Smallpox Infection Communicated to the Foetus in Utero, under peculiar circumstances.

Astley Cooper, Esq., F.R.S., surgeon of Guy's Hospital, London—A Case of Aneurism of the Carotid Artery; and A Second Case of Carotid Aneurism.

Humphrey Davy, Esq., F.R.S.—The Bakerian Lecture for 1809 on Some New Electrochemical Researches on Various Objects, particularly the metallic bodies, from the alkalies, and earths, and some combinations of hydrogen.

1812—The New England Journal of Medicine and Surgery, Boston, Volume I.

John Warren, M.D.—Remarks on Angina Pectoris. Reference is made to the contributions of Heberden, Fothergill, Parry and Cullen on this subject.

James Jackson, M.D.—Some Remarks on the Morbid Effects of Dentition.

Jacob Bigelow, M.D.—Observations and Experiments on the Treatment of Injuries Occasioned by Fire and Heated Substances.

Book Review—An Essay on the Organic Diseases and Lesions of the Heart and Great Vessels, by J. N. Corvisart, first physician of their Imperial and Royal Majesties (Napoleon and Josephine), honorary professor of the School of Medicine of Paris. The work was translated by Jacob Gates, M.M.S.S., Boston, Bradford and Read, 1812.

The examples cited comprise only a small part of the extensive reference material contained in our Iowa State Medical Library, which should be a source of continued pride to every member of the Society.

W. L. B.

IN MEMORIAM

Dr. Mathew Earl O'Keefe

1881—1939

Dr. Matt O'Keefe died suddenly while in his sleep, December 6, 1939, from a coronary thrombosis.

Mathew Earl O'Keefe, eminent surgeon, was born in Jesup, Iowa, in 1881. After his university education at Drake, in Des Moines, Iowa, he entered Creighton University where he received his doctor's degree from the John A. Creighton Medical College in 1906. Upon completing his

internship at Mercy Hospital, Council Bluffs, Iowa, he entered the practice of medicine in Council Bluffs in 1907 and continued in that location until the time of his death. He was married on February 16, 1920, to Miss Anne Ruth Sloan of Council Bluffs. They have two children—Mathew Earl, Jr., and Suzanne O'Keefe.

In the course of his professional career he did graduate work in the principal medical centers of Europe, and he was a frequent visitor at the leading medical institutions in his own country, constantly striving to gain knowledge and to improve his skill in his specialty.

Dr. O'Keefe was for many years a Fellow of the American College of Surgeons, in which organization he took an active interest. He was a member of both the National and International Societies for the Study of Goiter; a member of the Iowa Surgical Society and vice president of this group at the time of his death; a member of the American Medical Association, and the Iowa State and Pottawattamie County Medical Societies. He was a member of the Mercy Hospital staff for twenty-five years, and an instructor in surgery at Creighton University Medical School. He was a member of Phi Beta Phi fraternity and for a number of years was a prominent alumnus. He was one of the founders of the Council Bluffs Clinic.

Dr. O'Keefe exemplified the duties and privileges of good citizenship and was active in civic affairs. He was appointed a trustee to secure a free bridge from Council Bluffs to Omaha and was a tireless worker in an endeavor to bring about its accomplishment. His energetic and optimistic personality enabled him to carry through measures to an unusually successful conclusion, despite a modest, self-effacing nature. Dr. Matt was an excellent physician, possessing an unusual diagnostic ability with gentle hands in the art of surgery.

In Dr. O'Keefe's death the loss to surgery was great, but the loss to his friends and associates was even greater. We shall miss the inspiration of his personality and his work, but more than that, we shall miss his gentle kindness, his charity and patience, his capacity for always seeing the other fellow's point of view, his unselfishness, his general sense of humor and his light laughter. Most of all, we shall miss the sincerity of his friendship and his love of humanity. It was the writer's privilege to have known Matt O'Keefe and to have enjoyed years of close association with him. His death has brought a deep sense of personal loss.

W. E. ASH, M.D.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- TEXTBOOK OF NERVOUS DISEASES**—By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.
- OBSTETRICAL PRACTICE**—By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.
- THE NEWER KNOWLEDGE OF NUTRITION**—By E. V. McCollum, Ph.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University. Fifth edition, entirely rewritten, illustrated. The Macmillan Company, New York, 1939. Price, \$4.50.
- SYNOPSIS OF PEDIATRICS**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.
- POPULATION RACE AND EUGENICS**—By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by author, 1939. Price, \$3.00.
- TUMORS OF THE HANDS AND FEET**—By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.
- CANCER OF THE LARYNX**—By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.
- SCLEROSING THERAPY**—Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.
- THE NEW INTERNATIONAL CLINICS. VOLUME IV. NEW SERIES TWO.** Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.
- THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART**—By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.
- THE 1939 YEAR BOOK OF GENERAL SURGERY**—Edited by Everts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.
- LOVE PROBLEMS OF ADOLESCENCE**—By Oliver M. Butterfield, Ph.D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

BOOK REVIEWS

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1938. American Medical Association, Chicago, 1939. Price, \$1.00.

This volume, as usual, contains examples of the various kinds of reports made by the Council on Pharmacy and Chemistry: first, preliminary reports; second, supplemental reports on therapeutic or pharmacologic problems; and third, reports on the rejection of preparations offered for the Council's consideration.

Among the preliminary reports in this volume, that on sulfapyridine, which carries a special article by Dr. Perrin H. Long, a Council member who has been much concerned with the work on this drug, is perhaps of greatest interest. Other preliminary reports are on allantoin, a preparation of glyoxyldiureid purposed to supersede the use of surgical maggots; and sulfapyridine, published shortly before the Council acceptance of this new chemotherapeutic drug.

Among the supplemental reports are those on colloidal sulfur in the treatment of chronic arthritis, showing that much confirmatory evidence is needed to establish the value of this therapy; on ergonovine, presenting a careful study of the relation of this newly discovered principle to ergot therapy in general; and on picrotoxin in poisoning by the barbiturates, setting forth the promise and the present limitations of this antidotal therapy.

Products which have been rejected include Collo-
daurum, a "colloidal gold" preparation, promoted with unwarranted, exaggerated and misleading claims for its use in the treatment of cancer; Dermo-

G, stated to be a mixture of spermaceti, white wax, oil of sweet almonds, sodium borate, precipitated sulphur and water, an unscientific and superfluous mixture marketed under a therapeutically suggestive name with exaggerated, unwarranted claims; Fru-T-Lax, a needlessly complex and unscientific mixture advertised to the public under a misleading and inadequately descriptive name with claims which are unwarranted; and Hyposols Sulisocol, claimed to be "sulphur colloid" in two cubic centimeters of "autoisotonized solution", exploited for use in arthritis with inadequate evidence of its therapeutic value.

AN INTRODUCTION TO MEDICAL MYCOLOGY

By George M. Lewis, M.D., instructor in medicine (dermatology) Cornell University; and Mary E. Hopper, M.S., assistant in mycology, New York Postgraduate Medical School and Hospital. The Year Book Publishers, Chicago, 1939. Price, \$5.50.

The title of this work is decidedly a misnomer, because the subject has been thoroughly covered in a very competent manner by the authors, than which there are none better qualified for the undertaking. When one realizes that seventy-five per cent of the population of this country suffer from fungus infection of one type or another at some time during their lifetime, it is remarkable that there has been such a paucity of good books on medical mycology.

The authors have not devoted much space to a discussion of obscure problems. Classification of fungus infections has been made simpler and more understandable. Diagnostic procedures, both clinical and laboratory, have been given in detail. Treatment

by physical agents as well as by means of medication is thoroughly covered, and that treatment which is advocated has been tried and proved by the authors' personal experiences. In all there are seventy-one full page plates illustrating various types of fungus infections of the skin.

Both dermatologists and general practitioners will find this new monograph a most useful work, and a profitable addition to their libraries. J. W. Y.

CLINICAL PATHOLOGICAL GYNECOLOGY

By J. Thornwell Witherspoon, M.D., formerly associate professor of experimental and pathological gynecology, Indiana University Medical Center. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.

This is an orderly book type discussion of the pathology of the pelvic organs and the various pathologic processes. The style is concise and vivid and the entire volume is amply illustrated. The treatment outlined is conservative and yet up-to-date. This text is a good review of pelvic diseases and should be carefully read by every physician in active practice. M. M. D.

OCCUPATIONAL DISEASES OF THE SKIN

By Louis Schwartz, M.D., medical director, U. S. P. H. S., Washington, D. C.; and Louis Tulipan, M.D., clinical professor of dermatology and syphilology, New York University, College of Medicine. Lea and Febiger, Philadelphia, 1939. Price, \$10.00.

This book fills a need in a field which is not overcrowded. The chapters on bacterial infections, animal parasites, and fungus infections do not differ materially from these subjects as considered in the more complete textbooks on dermatology. In the more strictly industrial phases, the subject matter is arranged both by the chemical agent involved and by trade or occupation.

A book of this nature cannot completely cover the hazards of a rapidly changing industrial technology, and investigative work by the physician will be necessary from time to time. One chapter contains detailed information on the investigation of an occupation from the standpoint of industrial skin hazards. There is also a six page list of chemicals for the patch test, giving the methods of application, time, and those dilutions, which have been found by the authors to be non-irritating in control subjects, yet adequate to produce reactions in hypersensitive individuals. This should prove to be especially valuable, not only to the industrial physician, but to the dermatologist, since many of these chemicals are encountered not only in industry but in finished products as well. Much preliminary investigation is usually necessary to determine the properties of some "long-named" chemical before intelligent patch testing is possible.

This extensive list, upon which the authors have already done investigative work, enables the physician to proceed immediately with testing.

There are chapters of general information, such as statistics, predisposing causes, diagnosis and treatment, which serve to make the book complete; but its greatest value is giving the physician the various procedures and steps in an industry, the chemicals encountered in these steps, and the degree of skin hazard connected with them. These are truly complex in modern industry, as shown by the chapter on rubber manufacture, in which more than one hundred chemicals are mentioned. L. J. F.

GYNECOLOGY: MEDICAL AND SURGICAL

By P. Brooke Bland, M.D., professor emeritus of obstetrics, Jefferson Medical College. Third edition, revised. F. A. Davis Company, Philadelphia, 1939. Price, \$8.00.

This text presents a well organized system of gynecology, from the standpoint of both medical and surgical management. Each chapter is concise and well written. The various pathologic conditions are adequately discussed, and their symptoms, differential diagnosis and treatment are clearly outlined.

The chapters on disorders of menstruation and disorders of function are good. The chapter on tumors of the ovary is inclusive and well presented. Throughout the book, the basic gynecologic operative procedures are described and illustrated. Other discussions which should be attractive to the student, the interne and the practitioner include postoperative treatment, surgical technical methods, therapeutics and gynecologic radiology.

This text is elaborately and profusely illustrated in black and white, and color plates. The organization and scope of the subject matter, and the wealth of excellent illustrations should make this book particularly attractive as an adjunct in gynecologic teaching, and as a reference text for the student, the interne and the practitioner.

The publication and its companion volume "Practical Obstetrics" present an excellent two volume treatise worthy of genuine recommendation.

A. W. B.

DO YOU WANT TO BECOME A DOCTOR?

By Morris Fishbein, M.D., Editor of the Journal of the American Medical Association. Frederick A. Stokes Company, New York, 1939. Price, \$1.50.

A comprehensive review of this volume and the various problems germane to the title will be found in the editorial section of this issue of the Journal. The contents of this book provide much food for thought on a pertinent subject. The volume should be on the book shelves of every high school, junior college and university. E. M. M.

NUTRITION AND DIET IN HEALTH AND DISEASE

By James S. McLester, M.D., professor of medicine, University of Alabama. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.

This new book of McLester's on diet in health and disease is a well written study of the important phases of the vital needs of the body and the digestive functions. The author has approached the problem in a modern manner, and has presented a comprehensive discussion of the vitamins and the sources from which they are obtained. Various foods used in the everyday diet are mentioned.

The latter half of the book is devoted to diets which are used in various types of diseases. However, the tables of composition of American food materials, given in the appendix of the book, are for the scientific student and are not of great help to the general practitioner in preparing diets for a patient. It is a well written book and worthy of thorough study.

M. M. D.

NEW AND NONOFFICIAL REMEDIES, 1939

Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1939. American Medical Association, Chicago, 1939. Price, \$1.50.

Each year a revised list of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January first is published in book form under the above title. The work contains the descriptions of acceptable proprietary substances and their preparations, proprietary mixtures if they have originality or other important qualities, important nonproprietary non-official articles, simple pharmaceutical preparations, and other articles which require retention in the book.

A supplement to the annual volume of New and Nonofficial Remedies is published twice a year to bring up to date such current revisions and additions as have been necessary since its last publication. Every product included in the book is subject to the official rules of the Council. The comments to rules are changed occasionally by way of clarifying interpretation to insure fair consideration of all submitted preparations as new standards are recognized. Such constant and critical consideration of its contents provides the physician with a valuable reference list of acceptable new preparations on which to base his selection for use in treatment according to the established current practices of the profession.

New and Nonofficial Remedies for 1939 omits many articles which appeared in the publication for 1938. A few of these have been omitted by action of the Council because they conflict with the rules that govern the recognition of articles or because their distributors did not present convincing evidence to

demonstrate their continued eligibility. Among these are: biliposol, serobacterins and suppositories salyrgan. A considerable number of others have been omitted as being off the market.

The 1939 New and Nonofficial Remedies, of course, contains the revisions which appeared in the supplements for the 1938 edition, and continues the plan of grouping together articles having similar composition or action under a general discussion. These discussions have undergone considerable revision in the 1939 edition.

A general index lists accepted articles, including those not described. This is followed by an index to distributors in which appear all the Council accepted articles listed under their respective manufacturers. Finally, a bibliographic index is added for listing proprietary and unofficial articles not included in N. N. R.

DIAGNOSTIC SIGNS, REFLEXES AND SYNDROMES

By William E. Robertson, M.D., visiting physician, Medical Division, Philadelphia General Hospital; and Harold F. Robertson, M.D., instructor in medicine, University of Pennsylvania. F. A. Davis Company, Philadelphia, 1939. Price, \$3.50.

This composite treatise is replete with useful diagnostic aids which are usually disregarded and emphasized by the practitioner. The first of its type to be printed, this text contains a comprehensive, orderly arrangement of the many signs, symptoms and reflexes which exist in medicine. In the opinion of the reviewer this volume will open a new avenue of diagnostic specificity which has heretofore been lacking. The text is thumb-marked to facilitate easy reference.

This standardization should dispose of many conflicts which now exist in the differentiation of signs and syndromes.

J. W. C.

MENSTRUAL DISORDERS, PATHOLOGY, DIAGNOSIS AND TREATMENT

By C. Frederic Fluhmann, M.D., associate professor of obstetrics and gynecology, Stanford University School of Medicine, San Francisco, California. W. B. Saunders Company, Philadelphia, 1939. Price, \$5.00.

This book is a most comprehensive review of the anatomy, function and pathology of the female organs. This reviewer has never seen a book which gives such a clear cut picture of the uterus and ovaries. The author has a complete knowledge of the difficult actions of the ovaries, uterus and sex hormones, and brings this knowledge to the reader in an understanding way. The subject matter does not deal with surgical conditions and the discussion is confined to the glandular functions of these organs.

This volume should be of great interest to the general practitioner as well as the gynecologist, giving both a clear concept of the glandular functions of the female organs.

M. M. D.

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No. 2

THE TRANSIENT ANTIDIABETOGENIC EFFECT OF SYNTHETIC ADRENAL CORTICAL HORMONE: CORTATE*

PRELIMINARY OBSERVATIONS

E. B. WINNETT, M.D.,

JOHN W. CALDWELL, M.D., and

JAMES E. KAHLER, M.D., Des Moines

Interesting endocrinologic investigations of recent years have stimulated this clinical and laboratory study on two cases of severe diabetes. The purpose of the present paper is to call attention to two cases in which synthetic cortical hormone has had an alleviating effect on diabetes. The adrenal cortex has previously been considered to have the directly opposite effect. Previous data on this subject may be summarized as follows:

1. Diabetes produced by partial pancreatectomy in rats is attenuated by adrenalectomy. Adrenal grafts in these animals restore glycosuria. Cortin, when given to adrenalectomized pancreatectomized rats, increases glycosuria. (Long, et al.)

2. Cortin restores, to a considerable extent, the diabetes in depancreatized adrenalectomized dogs. (Lukens and Dohan.)

3. Adrenalectomy alleviates the diabetes of depancreatized dogs and cats. (Long and Lukens.)

4. Double adrenalectomy in cats and rats depletes the carbohydrate reserves of the liver and muscle and may produce a definite hypoglycemia. The latter is alleviated by cortical hormone plus glucose. (Long, et al.)

Joslin explains the experimental results of Long and Lukens "by a restoration of the ability of the body to utilize glucose, or by a decrease in the formation of glucose from protein and fat in the liver. The removal of the adrenal glands might alleviate the diabetes because the pituitary gland could exert its action upon the pancreas in a humoral way, via the cortex of the adrenal glands."

Kendall observed that cortin, when given to rats which had been made diabetic by partial pancreatectomy, produced a marked increase in potassium excretion, a rapid loss of weight and, in half the animals, death. Glycosuria did not always accompany the increased potassium excretion.

In the first two cases to be presented, a marked hypoglycemia resulted from the administration of desoxycorticosterone acetate, necessitating reduction in the amount of insulin tolerated. The effect was transient with the amount of cortate given.

Case 1. The first patient was a diabetic male, forty-two years of age, who was well regulated for one week prior to the beginning of the experiment. He was on a diet of carbohydrate, 150 grams; protein, 75 grams; and fat, 125 grams. He has been a patient of one of the authors for seventeen years, taking between fifty and seventy units of insulin daily since 1923. After the daily administration of fifteen milligrams of cortate for three days, he had an insulin reaction. During the following six days he had five severe insulin reactions in spite of a gradual reduction in the amount of insulin given. On the twelfth day his hyperglycemia, glycosuria and ketonuria began to return. (See Table I.)

Case 2. The second patient was a fifty-six year old male with diabetes of seven years' duration. He was maintained throughout this experiment on a diet of carbohydrate, 225 grams; protein, 80 grams; and fat, 125 grams. He was sugar and acetone free prior to the experiment. Administration of cortate permitted the insulin to be decreased gradually in amount over a period of five days, from 76 units on the first day to 15 units on the fifth day. On the sixth day no insulin was given, with a resultant increase in the blood sugar level, but without glycosuria or ketonuria. On the next three days insulin was not given, and the patient gradually developed increasing glycosuria and ketonuria. It was necessary to give insulin in addition to the cortate on the final date of the experiment. (See Table II.)

*The authors are indebted to the Schering Corporation of Bloomfield, New Jersey, for the hormone used in these experiments.

TABLE I—CASE 1.

	HOUR AND DAY								Daily Insulin	Cortate (Mgms.)	Remarks
	6:00 a. m. Urine		10:00 a. m. Urine		2:00 p. m. Urine		8:00 p. m. Urine				
Day	Sugar	Acetone	Sugar	Acetone	Sugar	Acetone	Sugar	Acetone			
Before Cortate	0	0	0	0	0	0	0	0	35 P. Z. I. 26 Reg.	0	
Cortate Begun 1	Trace	0	0	0	Trace	0	3.1%	0	35 P. Z. I. 26 Reg.	15	
2	Trace	0	0	0	0	0	Trace	0	35 P. Z. I. 28 Reg.	15	
3	0	0	0	0	0	0	0	0	35 P. Z. I. 28 Reg.	15	
4	0	0	0	0	0	0	0	0	35 P. Z. I. 28 Reg.	15	Insulin Reaction 2 a. m.
5	0	0	0	0	0	0	Trace	0	30 P. Z. I. 20 Reg.	15	
6	Trace	Trace	Trace	0	Trace	0	1.5%	0	25 P. Z. I. 20 Reg.	0	Insulin Reaction 6 a. m.
7	0	0	0	0	0	0	0	0	25 P. Z. I. 20 Reg.	15	Insulin Reaction 3 a. m.
8	0	0	0	0	0	0	0	0	25 P. Z. I. 20 Reg.	15	Insulin Reaction 1 a. m.
9	0	0	0	0	0	0	0	0	20 P. Z. I. 18 Reg.	15	Insulin Reaction 9 p. m.
10	0	0	Trace	0	Trace	0	2.7%	0	15 P. Z. I. 13 Reg.	15	Insulin Reaction 3 a. m.
11	0	0	0	0	1.6%	0	2.3%	0	0 P. Z. I. 13 Reg.	15	
12	0	0	1.9%	2+	2.6%	2+	5%	3+	10 P. Z. I. 8 Reg.	15	
13	Trace	0	3.5%	4+	8.3%	4+	—	—	10 P. Z. I. 16 Reg.	15	
14	0	0	4.1%	3+	2.2%	3+	—	—	20 P. Z. I. 47 Reg.	15	
15	0	0	Trace	0	2%	0	0	0	20 P. Z. I. 51 Reg.	0	
16	0	0	0	0	0	0	0	0	20 P. Z. I. 47 Reg.	0	
P. Z. I. = Protamine Zinc Insulin.											
Reg. = Regular Insulin.											

Table III shows additional laboratory data observed in Case 2. The decrease in blood potassium indicates that this synthetic hormone, like extract of the adrenal cortex, is concerned in electrolyte balance. The remaining values may indicate a hemodilution effect.

COMMENT

The above observations suggest that adrenal cortical hormone administered to human diabetic persons has a surprisingly different effect than when this same substance is used on experimental

animals. They do not, however, permit any conclusions, but rather raise the following questions, which will provide bases for further experimentation.

1. Is there an antagonistic antidiabetogenic substance in the cortex of the adrenal gland which counteracts an excess diabetogenic substance produced in the anterior pituitary gland? Is the pancreas capable of normal insulin production, providing a release of overstimulation is instituted?

TABLE II—CASE 2.

Day of Experiment		7:00 a. m.	10:00 a. m.	2:00 p. m.	5:00 p. m.	10:00 p. m.	Daily Insulin	Cortate (Mgms.)
Before Cortate	Blood sugar	75 mgms. %	153 mgms. %	184 mgms %	63 mgms %	53 mgms. %		
	Urine { Sugar. Acetone.	— —	1 9% 0	Trace 0	— —	Trace 0	76	0
1	Blood sugar	75	231	200	63	39		
	Urine { Sugar. Acetone.	— —	0 0	0 0	— —	0 0	76	15
2	Blood sugar	59	134	150	102	86		
	Urine { Sugar. Acetone.	— —	Trace 0	0 0	— —	Trace 0	63	15
3	Blood sugar	67	188	177	104	117		
	Urine { Sugar. Acetone.	— —	Trace 0	Trace 0	— —	1.4% 0	50	15
4	Blood sugar	74	165	140	83	178		
	Urine { Sugar. Acetone.	— —	Trace 0	0 0	— —	Trace 0	25	15
5	Blood sugar	76	208	118	45	132		
	Urine { Sugar. Acetone.	— —	1.4% 0	0 0	— —	0 0	15	15
6	Blood sugar	100	268	333	236	300		
	Urine { Sugar. Acetone.	— —	2.4% 0	0 0	— —	2.6% 0	0	15
7	Blood sugar	137	316	375	353	300		
	Urine { Sugar. Acetone.	— —	1.3% 0	2 6% Trace	— —	3.0% 0	0	30
8	Blood sugar	165	326	375	375	353		
	Urine { Sugar. Acetone.	— —	3 7% 0	3.0% 1+	— —	3.0% 1+	0	30
9	Blood sugar	179	375	405	270	333		
	Urine { Sugar. Acetone.	— —	2 5% 2+	2.9% 4+	— —	5.6% 3+	0	15
10	Blood sugar	200	309	300	190	273		
	Urine { Sugar. Acetone.	— —	4 6% 2+	2.9% Trace	— —	— —	15	15

2. Is the antidiabetogenic effect due to increased glycogenesis? If so, why are acetone bodies absent?

3. Why was the adrenal cortical substance counteracted after complete reduction of insulin? May this be the result of the cortate refractoriness mentioned by Hartman?

4. Why was the blood urea reduced? Can this be accounted for by a reduction in protein metabolism?

5. Does cortate stimulate the production of an antidiabetogenic substance elsewhere in the body?

6. Must we regard these two diabetic patients

TABLE III—CASE 2

Additional laboratory data before administration of cortate and nine days after administration of cortate.

	Before	After
Blood urea nitrogen.....	15 mg. %	9 mg. %
Blood cholesterol	214	185
Blood cholesterol esters.....	139	104
Blood fatty acids.....	333	301.1
Blood total lipoids.....	547	486.1
Blood lecithin	200	166.5
Serum sodium	327.8	301.9
Serum potassium	17.3	10.2
Plasma chlorides	602	602
Blood phosphorus (3 hrs. p.c.).....	4.0	3.0
Bromsulphalein retention	Grade 0	Grade 0
	(Less than 10%)	
Adrenalin response—		
Blood sugar control.....	153	405
½ hr. after 10 minims 1:1000 adrenalin	121	270
One hour after 10 minims 1:1000 adrenalin	109	333

as having an extrapancreatic diabetes, or does this hormone stimulate the islet tissue to more activity?

Clinically this synthetic substance has a transient, profound, rapid effect on carbohydrate metabolism, and we suggest that further experimentation will open new avenues for a clearer appreciation of the possible etiology of diabetes.

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REVIEW OF EXPERIENCES WITH PHARMACOLOGIC SHOCK THERAPY

RICHARD H. YOUNG, M.D., Omaha, Nebr.*

Pharmacologic shock therapy had its inception with the insulin treatment described by Sakel in 1935¹ and again in 1936². The use of induced convulsions was first described by Meduna in 1935³. In the subsequent years, there has been a gradual dissemination of these types of treatment and a combination of the two in the different psychiatric clinics in all parts of the world. The purpose of this paper will be to describe our own experiences and observations on the use of

INSULIN THERAPY

In association with Dr. G. Alexander Young, the author began the use of the insulin shock treatment in early October, 1936, on the basis of information we received from Sakel's article². We were perhaps fortunate in our selection of cases, but our early results were so satisfactory that we became actively interested, and in June of 1937, we reported on "Experiences with the Hypoglycemic Treatment of Schizophrenia" at the first symposium on this subject at the meeting of The American Psychiatric Association⁴. At this time, we reported our results on 31 schizophrenic patients who had completed treatment, showing an amelioration of psychotic symptoms in 58 per cent.

One year later, in June, 1938, we reported⁵ our results in 70 cases of schizophrenia treated with insulin between October 1, 1936, and October 1, 1937. The results in this group are represented by Table I. The results in our cases compared closely with those of the larger series of 495 cases reported by Müller at The Swiss Psychiatric Congress in May, 1937⁶. This table also included a follow-up record of the patients who had shown remission and had been discharged from the hospital. Of the 32 patients who had shown either complete or incomplete remission, eleven had shown some transient or permanent return of psychotic symptoms, but at the time of the report only three of the eleven patients were in psychiatric hospitals.

Since this report a year ago, we have continued to use the insulin treatment with very gratifying results. In our private practice, we have felt that the insulin treatment, or insulin combined with metrazol, was superior to the use of metrazol alone in the treatment of schizophrenia.

TABLE I
TABULATED RESULTS OF 70 CASES OF SCHIZOPHRENIA TREATED BY INSULIN THERAPY
between October 1, 1936 and October 1, 1937

Duration	Number of Cases	Remissions	Incomplete Remissions	Improved	Unimproved
Symptoms under one year	43	24 55.2%	4 9.3%	5 11.8%	10 23.1%
Symptoms from one to two years	12	1 8.0%	2 17.0%	6 50.0%	3 25.0%
Symptoms over two years	15	0 0	1 6.0%	4 27.0%	10 67.0%
TOTAL	70	25 35.7%	7 10.0%	15 21.4%	23 32.9%

Follow-up of Cases with Remission:

	Remissions	Incomplete Remissions
Total	25	7
Relapse symptoms	8	3
Hospitalized at present	2	1
Suicide	1	

the pharmacologic method, together with the attitude of European clinics to pharmacologic shock therapy, in order to present data for the evaluation of this therapy by the Iowa State Board of Control.

*From the Department of Neurology and Psychiatry, University of Nebraska.

Because of the financial strain of private hospitalization, it has been necessary for us to work out a method which would allow us to obtain the best results in the shortest possible time. On this basis, we give the insulin treatment to the schizophrenic patient for a period of three weeks, and then if there is not a satisfactory improvement,

we add metrazol in the form of an injection two or three times a week, or occasionally we use the so-called "block method" of giving insulin one week and metrazol the next. In addition, for those patients who show a marked resistance to insulin, rather than waste valuable time in working up to a coma dose, we have used metrazol in conjunction with the insulin. We have given the metrazol one and one-half hours after the administration of insulin.

There has been a tendency on our part to individualize the insulin treatment to a certain extent, in that when we find patients who show a marked improvement as they are building up to a coma dose, we usually give such patients only light comas and of short duration. In the more resistant cases, where the delusional or hallucinatory content is more marked, we give more profound and prolonged shocks. In the schizophrenic cases which show affective features, we are very much in favor of the combined insulin and metrazol treatment, and feel that it can be started without the preliminary trial on insulin therapy alone.

CONVULSIVE THERAPY

Our personal experience with metrazol dates back to July, 1937, when we began to use the convulsive treatment in schizophrenia. At the meeting of The Omaha Midwest Clinical Society in October, 1937, we reported on a group of twenty patients with schizophrenia who had been treated by convulsions induced by metrazol. All of these patients had received some insulin treatment. In this group there were eight who showed the duration of psychosis under six months, and of this group 50 per cent showed a remission. In a group of eleven of one year's duration there were no remissions, but improvement in five cases. Our experience in schizophrenia with metrazol, alone, has not been particularly satisfactory, and in this group we have always combined the metrazol with insulin.

TABLE II

TABULATED RESULTS OF 21 CASES OF DEPRESSIVE PSYCHOSES TREATED BY METRAZOL

Duration	Number of Cases	Recovered	Marked Improvement	Improved	Unimproved
Symptoms under six months	10	7	3	0	0
Symptoms from six to twelve months	4	3	0	1	0
Symptoms over one year	7	2	3	1	1
TOTAL	21	12	6	2	1

Age Range—21 to 60.

Number of convulsions—1 to 16. Average number of convulsions—7.

Period of Treatment—1 to 45 days. Average period of treatment—21.6 days.

The convulsive therapy has in our hands found its greatest use in the treatment of the depressive

psychoses. In the summer of 1937, because of the observation that schizophrenic patients with depressive features seemed to have a rather good response to convulsive therapy, we began the use of metrazol in the affective psychoses. In June, 1938, we reported⁵ a group of twenty-one cases of depressive psychoses treated with metrazol. The results obtained are set forth in Table II and show a recovery in 57 per cent, with marked improvement in 29 per cent. In this group there were five cases of over eighteen months' duration, with recovery in two and marked improvement in two others.

Since that time, we have given the convulsive therapy to a group of 75 affective psychoses with the same good results, and included in this series is a group of seventeen patients over sixty years of age. It has been our experience that the involutional type of depression has been particularly amenable to this type of treatment, while in the usual manic depressive group it has been possible to effect a quick change in behavior, shortening the period of illness. However, in this latter group there has been a tendency to relapse or to swing from a depressive to an excited stage. This has also been true of some patients with manic excitement who have had a shortening of their period of illness, but have relapsed into a depressive swing.

At the present time, it is our practice to give metrazol every other day for five or six injections, except in the elderly patients, and then every third day until cessation of treatment. The total number of convulsions would average about eight. In some of the depressive cases, we have seen striking results from subconvulsive doses, but the usual reaction with failure to get a convulsion is one of marked anxiety. While the average number of convulsions is eight, it is occasionally necessary in the depressive cases to give as many as fifteen. One man sixty-seven years of age, who had been in private psychiatric hospitals with an agitated depression for three years, showed an excellent recovery with metrazol, but not until he had been given fourteen injections of the drug.

ATTITUDE OF EUROPEAN CLINICS TO PHARMACOLOGIC SHOCK THERAPY

From early December, 1938, until the last of March, 1939, it was my privilege to visit a number of psychiatric hospitals in Europe, and during this time I was much interested in observing the work done with insulin and metrazol.

Switzerland. Perhaps the greatest experience with insulin has been in the Swiss Hospitals, and particularly at Munsingen near Bern, where M. Müller has been in active charge. This was one of

the first large clinics to use insulin, and they still are actively engaged in insulin therapy, running between 30 and 50 patients under treatment all the time. When I visited there in January, Dr. Müller expressed the belief that his present statistics were essentially the same as those he had published approximately a year before; and while they have occasional relapses, they still felt the hypoglycemic method was a most valuable form of treatment. At Yverdon, Georgi advocates the combined insulin and metrazol treatment in schizophrenia, but usually gives this combined treatment only after a preliminary trial on insulin alone. At Basel, in Professor Staehlin's clinic, insulin therapy was used on a rather large scale. It was only at the Burghölzli in Zurich that the convulsive treatment was considered anywhere nearly as effective as the insulin treatment in schizophrenia. There are very few affective psychoses in Switzerland; almost all of the interest is centered around the treatment of schizophrenia. The consensus of opinion was that the hypoglycemic method was considerably more effective than the convulsive therapy.

France. At the larger psychiatric clinics, particularly in Paris, the insulin treatment is used, and to a less extent the convulsive therapy. The unique feature about the insulin treatment in France is the tendency to individualize the treatment in each case. Another desirable feature observed was the greater tendency to pay attention to the body temperature as an indication to the depth of shock and to the time for interrupting the coma. On the French insulin wards, great attention was given to the patient's comfort during the treatment and immediately after the interruption with glucose, at which time warm bedding and bed jackets were brought for the patients.

Holland. In Holland, there was considerable interest, particularly in the insulin treatment, although in Amsterdam, where there is an active psychoanalytic group, the same enthusiasm was not evident.

Germany. In Germany, the insulin treatment and the convulsive methods were both used, and at some clinics large groups were under treatment.

England. One finds less enthusiasm for the pharmacologic shock therapy in England than on the continent. The group at the Maudsley Hospital expressed the belief that the insulin treatment shortened the treatment period in those schizophrenic patients who had the ability to recover. They felt that the majority of patients who recovered with insulin would have done so spontaneously, although they did feel that pharmacologic methods accelerated the recovery rate.

Scotland. In Edinburgh, Professor D. K. Henderson had largely given up the insulin shock method because of the expense and the necessary personnel involved in the administration of this type of therapy. It is their practice to use the convulsive treatment in cases in which they feel shock therapy is indicated.

In regard to the treatment of the affective psychoses, it was only in England that one found any experience in the use of the convulsive method. Nowhere did the author find any experience in the treatment of the depressions in the older age group.

DANGERS OF PHARMACOLOGIC SHOCK THERAPY

Our own experience with the insulin shock therapy and that of other investigators has shown this type of treatment to be an essentially safe form of treatment. In our own private practice, we have never had a death from insulin shock therapy, although at the Douglas County Hospital in Omaha, where the treatment was first tried, there were two deaths. Most observers would agree that the mortality percentage is considerably under one per cent, provided the treatment is given by an experienced personnel. In Freiburg, Germany, one of the places where the insulin treatment was first used, I was told that the workers were now seeing patients who had shown relapse, and that some of these patients showed an electrocardiographic change which would indicate that insulin treatment was capable of producing a myocardial change. The use of metrazol as a convulsant has not proved to be a dangerous type of therapy, and in our own series of approximately 300 cases we have had no deaths. An occasional death has been reported, but the mortality percentage must be under 0.5 per cent.

The use of metrazol has resulted in a number of bony fractures, the most serious of which have been vertebral compressions. The New York Psychiatric Clinic reports that as many as 35 per cent of their patients have experienced vertebral compressions, and that this complication has also been seen after the convulsions which occasionally complicate the insulin treatment. However, it is my own belief that the bony complications seen with the convulsive therapy can largely be prevented by a proper restraint of the convulsing patient. In our own private practice, we have never had a patient in plaster. We have had two cases of dislocated shoulders and have had a linear fracture without displacement of the greater tuberosity of the humerus. We have had two cases of vertebral compression. It is probable that other patients have suffered from vertebral compression, but former patients have not complained of sore

back or other complications. The two patients with vertebral compression were treated with back braces and have experienced no real distress.

Occasionally patients have developed temporary sensorial changes with memory loss, but this has not been a serious permanent defect.

We do not feel that the possibility of these complications should prevent one from using a type of therapy which has proved to be efficacious. In depressive psychoses we believe that there is a danger involved in allowing the patients to continue with a less aggressive type of therapy. There is the danger of getting in a depressive rut of a fixed nature and also the ever-present danger of self-destruction.

EVALUATION OF THE PHARMACOLOGIC METHOD

Our own evaluation of the pharmacologic shock therapy is based upon more than two and one-half years of active experience with patients in the private psychiatric wards of four of Omaha's general hospitals. Our case material probably offers a better opportunity for therapeutic results than a state hospital group because we undoubtedly see psychoses of shorter duration and in a more plastic stage. On the basis of our experience, and clinical observations elsewhere, we feel that any patient with a schizophrenic psychosis of under a year's duration should be given the insulin shock treatment or insulin in combination with metrazol. The type of treatment should be individualized according to the reaction of the patient. In cases of over one year's duration we feel the use of the treatment is optional. We advocate its use when amelioration cannot be obtained by the usual methods of treatment or when the relatives of the patient are anxious for a trial of this type of therapy. In the cases of short duration, we believe the duration of the psychosis is shortened and that there is a qualitative improvement in the type of remission obtained. In the affective psychoses, we feel that the convulsive method is a valuable therapeutic adjunct. In the manic depressive group, it is usually possible to shorten the duration of the mood swing and to achieve an improvement, although it is not always lasting. The convulsive therapy produces its most striking results in the involuntal depressions and in the depressions of the older age group. It is strongly advocated for the depressions of long-standing, when there is rut formation, reactions of aversion, and in cases which do not respond to the usual methods of treatment.

CONCLUSIONS

1. The hypoglycemic method, or insulin in combination with metrazol, is a therapeutic

measure to be strongly urged in cases of schizophrenia of under one year's duration.

2. The convulsive method is an important therapeutic adjunct in the affective psychoses.

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PREANESTHETIC MEDICATION

STUART C. CULLEN, M.D., Iowa City*

Tranquility amid the strange activity, sights and aromas of the operating room, is a state of mind which the surgical patient can rightfully expect from the proper application of preanesthetic medication. Adequate preoperative sedation, in addition to minimizing the psychic trauma incident to the induction of anesthesia and the contemplation of surgery, serves also to improve the quality of the anesthesia. This increases the convenience to the surgeon and indirectly contributes to the safety of the patient.

Preanesthetic medication has several functions each of which serves a definite purpose. Intelligent use of these necessitates a knowledge of the pharmacologic action of the various drugs used for the purpose and individual application of various combinations of drugs and dosages according to the requirements of the patient and the anesthetic agent and technic selected. The use of routine drugs and dosages without regard for the indications is unjustified and cannot help but fail to serve its purpose in a large number of cases with consequent hazard to the patient and inconvenience to the surgeon.

Allaying preoperative apprehension, in addition to the psychic benefit to the patient, inhibits the physiologic derangement occasioned by apprehension. A cooperative and calm individual is more amenable to regional block, spinal and local infiltration technics and more suitably prepared for inhalation anesthesia. The forcible application of these technics on the uncooperative patient frequently results in poor anesthesia and inadequate operating conditions, and may terminate tragically. Time taken for the proper application of medication is always well spent. The circulatory disturbances under anesthesia accentuated by the in-

*Associate in Anesthesia, State University of Iowa, College of Medicine.

creased adrenalin output accompanying preoperative apprehension are eliminated in the adequately premedicated patient. There is also less interference with the respiratory balance since the patients do not hyperventilate and disturb their carbon dioxide oxygen ratio. Induction excitement, active restraint of patients and the retention of unpleasant memories, particularly in children, are reduced to a minimum.

The lowering of reflex irritability and the elevation of the pain threshold are other important functions of preanesthetic medication. These actions provide increased safety to the patient. The total amount of drug necessary to effect and maintain anesthesia is reduced, thus lightening the load on the organism in eliminating and detoxifying the agent. The recovery period is, therefore, shortened with a consequent decrease in postoperative pulmonary complications. The concentration of the agent necessary to effect the desired plane of anesthesia is lowered. This is of particular significance in cyclopropane anesthesia since increased concentrations predispose to undesirable circulatory changes. The use of nitrous oxide or ethylene is facilitated by the heightening of the pain threshold and the lowering of the reflex irritability. These agents, which are entirely non-toxic, may then be used without oxygen deprivation in many cases requiring light anesthesia.

Reduction of the basal metabolic rate occurs with some of the premedicating drugs and is a specific action apart from the reduction in metabolism coincident with elimination of fear. This function is of particular significance in the treatment of thyrotoxic patients. The effectiveness of weeks of careful preoperative preparation of the thyrotoxic patient can be seriously impaired by inadequate preanesthetic medication.

Many drugs used in preanesthetic medication have special functions. Atropine sulphate and allied drugs paralyze the parasympathetic division of the autonomic nervous system. This decreases the secretions of the mucous glands of the respiratory passages and also tends to eliminate certain vagal reflexes manifested by laryngospasm, bradycardia and a decrease in pulse pressure incident to a hyperactive carotid sinus mechanism. Barbiturates used in premedication protect against the convulsant manifestations of toxic reactions to cocaine and its derivatives. In addition there is evidence to show that they minimize the hyperglycemia incident to ether anesthesia.¹

All of these various functions of preanesthetic medication must be accomplished without depression of the circulation, the respiration or the compensatory mechanisms of the body.

Of the drugs in general use for premedication the most widely used are the opiates, scopolamine, atropine, and the barbiturates. Morphine is the most efficient premedicative agent known. It produces the major portion of the necessary functions with the least amount of interference with body physiology. Its three functions are psychic sedation, depression of metabolism, and analgesia. The latter two functions are more important, psychic sedation being obtained more efficiently with other drugs.

Morphine may be administered by any one of three routes; subcutaneously, intramuscularly, or intravenously. The dosage is the same for all three methods. The variations of the three methods are manifested by the differences in the time of onset of peak action; subcutaneously this is reached in approximately ninety minutes, intramuscularly in approximately forty-five minutes, and intravenously in approximately fifteen minutes. It is imperative for the smoothness of the anesthesia and the safety of the patient to attain the maximum effect of the premedication before starting the anesthesia. The incidence of induction excitement is reduced. More important is the elimination of undue depression occurring in the middle of the anesthesia due to coincidence of the maximum effect of medication and the maximum concentration of anesthetic agent. The long recovery period attending impaired elimination of anesthetic agents from postoperative depression of respiration and circulation, accompanying the above coincidence, results in increased postoperative pulmonary complications. Too many deaths have occurred as a result of the following sequence of events. The patient is given a routine preanesthetic medication subcutaneously immediately before a deep ether anesthesia which the patient, at the termination of the operation, is unable to eliminate satisfactorily because of the marked depression from premedication and anesthetic agent. These patients frequently never recover from the anesthesia and die in so-called postoperative shock. If the time before operation is to be less than forty-five minutes morphine should be given intravenously. The morphine is diluted with five cubic centimeters of normal saline and given slowly over a period of two to three minutes.

Unfavorable reactions to morphine are due most often to over-dosage, the coincident depression resulting in respiratory depression, obstruction and asphyxia. Treatment consists of establishing and maintaining a patent airway, administering oxygen and artificial respiration when necessary. No individual needs to die from morphine overdosage if the above treatment is adequately and promptly ap-

plied. Stimulation of the patient by walking, slapping, application of cold water, etc., is detrimental since it increases the demand for oxygen. Analeptics, such as metrazol and coramine, are of some value in reducing the time of depression but should be used cautiously and with no thought of attempting to restore consciousness. Their principal function is stimulation of respiration. Idiosyncrasies to morphine are usually manifested by nausea and vomiting, characterized by violent prolonged retching, which may even occur in moderate anesthesia. In some cases relief follows the administration of metrazol. Morphine substitutes such as pantopon and dilaudid have no particular advantages in preanesthetic medication. Morphine will in the long run prove most satisfactory.

Of the belladonna group scopolamine and atropine are the most useful. Scopolamine and hyoscine are essentially the same drug. Atropine and scopolamine are chemically similar but differ in their pharmacologic actions in that scopolamine has a definite psychic sedative effect with the production of amnesia. Scopolamine in equal amounts is as effective in drying secretions as atropine. The functions of this group are depression of mucous secretions, elimination of vagal reflexes, psychic sedation and, to a certain extent, stimulation of respiration. These drugs may be administered by any of the three routes used for morphine. The maximum effect when they are given subcutaneously is reached in fifteen to twenty minutes and lasts for several hours. For the comfort of the patient the drugs are usually administered at the same time as the morphine.

Well controlled clinical investigations of the ratio of morphine and scopolamine have revealed that the optimum ratio is twenty-five parts of morphine to one part of scopolamine.² Practically, this is grains one-fourth (or 0.015 grams) of morphine with grains one-one hundredth (or 0.0006 grams) of scopolamine; grains one-sixth of morphine (or 0.010 grams) with one-one hundred and fiftieth (or 0.00045 grams) of scopolamine; and grains one-eighth (or 0.008 grams) of morphine with grains one-two hundredth (or 0.0003 grams) of scopolamine. Except in rare instances a person who can tolerate grains one-fourth of morphine can also tolerate one-one hundredth grain of scopolamine. In this ratio there is minimum nausea and vomiting and respiratory depression from the morphine and less uncomfortable dryness and palpitation from the scopolamine.

Scopolamine in preanesthetic medication is to be preferred to atropine because of the increased psychic effect obtained. Reactions from scopolamine are in most instances due to impurities in the drug,

usually as a result of deterioration of tablets.³ The institution using small quantities of the drug should procure it in ampoule form. The reaction is manifested by a flushed face, circumoral pallor, tachycardia, irritability and excitement, sometimes progressing to delirium. Treatment includes apomorphine in subemetic doses, usually grains one-fortieth (or 0.0012 grams).⁴ The incidence of even moderate scopolamine reaction is very low when stable preparations and proper doses are used.

The barbiturates produce excellent hypnosis and protect the patient against the convulsant manifestations of toxic reactions to cocaine and its derivatives. Their use for any other purpose is not warranted. Barbiturates are inconsistent in their action in infants and the aged. They can be divided into long, medium and short acting groups. For purposes of preanesthetic medication, interest is centered largely on the short acting group which includes seconal and pentobarbital sodium (nembutal). Their action is relatively short, varying from three to five hours in length. The drugs are usually given perorally, although they may be given per rectum in children and on occasions, intramuscularly. The onset of action is within twenty minutes, and it reaches a maximum in approximately thirty minutes. When used with morphine these drugs should be given before the administration of the morphine, since the absorption from the intestines may be delayed by the motor inhibitive effect of the morphine on the stomach.

Untoward reactions from the barbiturates may be manifested by excitement, particularly when they are given in the presence of pain. Circulatory and respiratory depression also occurs and is treated by establishing a patent airway, administering oxygen and giving artificial respiration. Analeptics, such as metrazol and picrotoxin, are of value in shortening the period of depression but are only an adjunct to the above measures. Barbiturates are of benefit chiefly in spinal, regional block and local infiltration techniques. The use of barbiturates in inhalation anesthesia with ether or cyclopropane is contraindicated since the parasympathomimetic action increases the tendency to laryngeal and bronchial spasm.

Proper estimation of the premedication dosage is of importance. The metabolic activity of the individual is the most reliable criterion and the classical investigations of Guedel on this subject demonstrate the value of the method.⁵ Of the many factors influencing the metabolism of an individual, age is the most important. The meta-

bolic rate increases rapidly from birth to one year, after which it gradually increases for four or five years. A moderate decline occurs until puberty when a peak similar to that at the five year level is reached. From puberty until death a gradual decline in metabolic activity is evident. This explains the common practice of underestimating the sedation necessary for children and overestimating it for the aged. Other factors, notably pain, fever, emotional instability, toxemia, thyrotoxicosis, decompensation and leukemia, increase the metabolism. Debilitating diseases and specific hypometabolic states decrease the metabolism. Weight has no influence on the estimation of the sedation required, except as it reflects the metabolic activity of the individual. The choice of the anesthesia may also influence the dosage. When nitrous oxide and ethylene are employed, large amounts of premedication are necessary to reduce the reflex irritability and metabolism, allowing the use of these impotent agents without oxygen want. Relatively large doses may be employed when ether is used since the latter reflexly stimulates respiration. However, in using cyclopropane the dose must be reduced since cyclopropane does not stimulate respiration and large amounts of medication predispose to apnea.

SUMMARY

The use of non-volatile sedatives and other drugs before operation to prepare the patient for anesthesia and surgical manipulation is recommended. Preanesthetic sedation is a rational procedure based upon well established pharmacologic principles. Many factors will modify the choice of the drug and dosages in individual cases.

A single drug or combination of drugs cannot be suited to all cases. Routine prescription without individualization cannot be satisfactory. The most consistently good results are obtained when the various influencing factors are carefully weighed and the available drugs considered. The anesthetist who thoroughly understands the physiologic and pharmacologic actions of the sedative drug prescriptions, who is experienced in the assessment of the variant factors in individual cases, and who is familiar with the conditions under which the anesthesia and operation are to be performed, is best fitted to prescribe sedation for the patient. Training and experience are more often reflected in the success or failure of preanesthetic medications than in any other phase of the anesthetic procedure.

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CORONARY THROMBOSIS

J. STUART MCQUISTON, M.D., Cedar Rapids

If coronary thrombosis always occurred as it is classically described further discussion of the problem would be quite unnecessary. Because too many pains are loosely attributed to this condition, Herrick¹ recently wrote "On mistaking other diseases for acute coronary thrombosis". The majority of autopsy series indicate only about 75 per cent accuracy in making the diagnosis when the postmortem examination shows infarction to have occurred.

Cardiac physiology and pathologic physiology give one a better understanding of the problems involved when studying coronary occlusion. In normal hearts the oxygen requirement is proportional to the work done, but this fails to hold true in dilating or failing hearts. This is indicated in the experiments of Starling and Visscher² who found the oxygen requirement is proportional to the diastolic volume of the ventricle which increases as failure continues. It is also known experimentally that an increase in rate demands more oxygen. Thus we have two factors requiring more oxygen while the heart is doing less work, and conversely in coronary arteriosclerosis we have such narrowed rigid vessels that it is difficult to increase the flow except by collateral anastomosis. Increasing aortic pressure with constant coronary resistance will definitely increase the total coronary flow. If coronary resistance is raised as much as the systemic resistance, an increase in the total coronary flow occurs but not a relative increase. Evans, Anrep and Starling³ regard the mean pressure as the important factor governing coronary flow rather than the systolic or diastolic pressures. Smith⁴ believes diastolic pressure the more important. Wiggers⁵ states the systolic flow is determined by the systolic pressure and the diastolic flow is regulated by the diastolic pressure.

There is a standard debate concerning the coronary flow during systole and diastole. Anrep believes there is complete cessation of inflow during the latter two-thirds of systole on the basis that the pressure within the contracting muscle mass must be greater than the pressure in the aorta and coronary vessels which is produced by the contracting ventricle. Wiggers, et al.,⁵ consider volume inflow substantially equal during systole and

diastole explaining that the greater flow during diastole is due to the fact that diastole lasts longer than systole. Probably the truth lies somewhere between these opposing views but I am inclined to favor the opinion of Anrep.

Physiologists believe coronary dilatation with increased flow is the result of sympathetic stimulation. Acid metabolites, the result of muscular contraction, are known to cause arterial dilatation which may explain the relief of cardiac pain occurring after continuing exercise. Adrenalin from exercise may contribute to this relief of pain since adrenalin is said by some to cause coronary dilatation. The effect of the heart rate on the coronary flow is still a moot point.

According to Wearn⁶ the normal growth of heart muscle is accompanied by an increase in the number of capillaries. In hypertrophy of the heart he found no increase in the number of capillaries; in fact, he found a material reduction of the concentration of capillaries in hypertrophied cardiac muscle. As a corollary to this work Bartels and Smith⁷ found cardiac enlargement in a series of cases with coronary sclerosis unexplained by any other findings.

The cause of pain in coronary occlusion formerly was explained by Allbutt's and Wenckebach's mechanical theory of aortic origin.⁸ At present Lewis' conception is more or less accepted. He believes in the chemical origin of pain in the heart muscle itself; ischemia occurs which produces what Lewis calls for lack of a better name "P" or pain substance, which is a stimulus to the nerve endings. The most current conception is that of Gorham and Martin⁹ who support the tension factor as a cause of pain. These workers elicited pain in animals when tri-directional tension in one plane was applied by means of fine sutures in the coronary wall in such a manner as to cause no appreciable change in blood flow. Perhaps the answer may be a combination of tension factor and the presence of the "P" substance of Lewis. The etiologic factors in coronary sclerosis are listed by Basil Parsons-Smith¹⁰ as defective lipid metabolism, heredity, low grade infections, lead, tobacco, alcohol and prolonged hypertension. He quotes Leary who produced atheromatous changes in blood vessels of animals by feeding them a high cholesterol diet. Further experimental work along this line is that of Hall¹¹ who gave daily injections of acetylcholine and produced lesions in dogs similar to coronary sclerosis in man.

When speaking of obstruction of the coronary vessels we commonly think of an acute thrombus, formed on an atheromatous plaque, but we must

not forget that there are other lesions such as severe arteriosclerosis with stenosis, luetic aortitis and coronary arteritis with narrowing of the ostia, endarteritis and embolism. Wortman¹² reports six cases of occlusion of the coronary arteries by hemorrhage into their walls. The incidence of coronary occlusion in patients with heart disease, according to Willius, et al.,¹³ is 28.2 per cent of 5,060 consecutive autopsied cases.

When we discuss symptoms we must realize that we are dealing with subjective sensations as well as objective findings. Subjectively we first consider pain. Libman has ably demonstrated that sensitivity to pain is variable. This probably accounts for the high incidence of painless coronary occlusion in negroes. The incidence of painless closures is reported in the literature from 38 to 61 per cent when autopsies are used as the basis for the figures. Some variation in the statistics is undoubtedly due to interpreting the presence of old scars as evidence of coronary thrombosis where history is negative. When only cases having an actual thrombus and acute infarction were considered, Gorham and Martin⁹ found pain in every one of fifteen cases. The pain of coronary thrombosis is typically a vise-like, excruciating substernal pain radiating to the left shoulder and down the left arm. Variations of this may run from no pain to atypical varieties as to type, location and radiation. The pain may be epigastric or precordial, and in either shoulder, neck or arms. One patient comes to mind who complained only of a squeezing pain in the left wrist; yet he definitely had a coronary occlusion. Another patient complained only of a severe aching pain in both shoulders and arms, which he wanted to "shake out." This pain lasted for three days before any evidence was obtained to confirm the suspicion of an occlusion. This patient also presented a feature common to many cases; his pain was rhythmic in its onset lasting for fifteen minutes to an hour or two. This rhythmic characteristic has been referred to sometimes as the "labor pains of the heart." The sense of compression or constriction, regardless of the location, is the important feature of the pain in these cases. A good rule to follow is to consider any anginal-like pain which lasts longer than twenty or thirty minutes as being due to coronary occlusion unless it is proved otherwise. The pain of angina pectoris occurs with exertion and stops the patient in his tracks, while that of coronary occlusion may occur with exertion but most frequently comes on at rest and is associated with restlessness.

Dyspnea is the next most outstanding complaint. The sudden onset of dyspnea or orthopnea may be

the only evidence of serious trouble. It is well to keep in mind, however, that many patients with coronary sclerosis who do not have any thrombosis suffer from nocturnal dyspnea. The paroxysmal attacks are usually of shorter duration and are not associated with other symptoms suggesting coronary occlusion. The dyspnea of coronary thrombosis may be interpreted as a smothering sensation.

The next suggestive feature, which I believe to be quite important, is the feeling of apprehension and fear of death. This seems to be out of proportion to the severity of the pain in most instances. Objectively we must look for the following signs. Evidence of shock is usually common and the patient will present a gray color, an anxious expression and a moist skin. Sweating will occur later, but then it is thought to be due to the protein disintegration at the site of the infarction. The patient is usually restless. The pulse is not typical; it may be slow or fast, or irregular. Some cases have been reported in which sudden irregularity of the heart was practically the only evidence of thrombosis. The most common irregularity is the presence of premature contractions. This feature will not be discussed because it comes under the electrocardiographic phase of this condition.

The fall in blood pressure which is so familiar in these cases may not be apparent for several hours or even several days, and the blood pressure may be slow in returning to approximately the previous level. In the majority of cases the pressure never returns to pre-existing levels. The rapidity of its return will be considered under prognosis. Vomiting is common and, in fact, may lead the casual observer to a diagnosis of some condition below the diaphragm. This is encouraged by the patients who attribute all their symptoms to gas or some bowel disturbance. Fever is not essential in the diagnosis since numerous cases have been reported without any elevation of temperature. Bean¹⁴ found fever in only 70 per cent of 300 cases. The temperature in the average case will vary between 99 to 101 degrees, and return to normal in about seven days. The onset of the fever may not occur for two to three days but ordinarily it is present after the first twenty-four hours.

Physical examination of these patients may yield little or no information. The average patient will present the picture of shock as described above. Auscultation of the heart will reveal diminished distant heart tones, especially the first sound. The pulse may be regular, rapid or slow, or present any one of the usual irregularities. The

apex impulse is diminished or absent. Friction rub should be anticipated and listened for frequently. If it is a posterior infarction it is difficult to hear the friction rub due to its location. The incidence of friction rub in anterior occlusion depends to some extent on the frequency of examinations. In a series of 300 cases, Bean¹⁴ elicited friction rub in 41 per cent of patients with acute pericarditis, secondary to coronary occlusion. Steincrohn¹⁵ described a clinical observation which he noted in many of his patients, consisting of a light purple red color over the anterior portion of the chest in the shape of a triangle, the base of which was formed by the clavicles and the apex by the middle of the sternum. This color is said to blanch on pressure and may last for as long as eight years. Such an appearance would indicate either a previous or current occlusion. I have not personally observed this. Râles in the lung bases are commonly found in coronary thrombosis.

While history and physical examination are probably more important than anything else, certain laboratory examinations are exceedingly helpful and even diagnostic in and of themselves, if we include the electrocardiogram. Leukocytosis is the usual finding during the first weeks and averages 10,000 to 15,000. In Bean's series¹⁴ 79 per cent had a count of over 10,000. There is a shift to the left in the differential count. The prognostic significance of the white count will be considered later. The urine contained albumin in 57 per cent of Bean's series and I believe this coincides with the findings of most authors. A transient glycosuria is not uncommon, but it does not indicate present or latent diabetes. This feature should be watched so that one does not harm the patient by giving large doses of insulin. An increase in the nonprotein nitrogen over 40 milligrams per cent was found in 31 per cent of Bean's cases. Determination of the sedimentation rate has become an accepted procedure in studying coronary cases. It is increased in all cases and markedly so in 75 per cent (Gorham and Thompson¹⁶), the peak occurring between the fourth and the twelfth day. A moderate increase was noted in coronary sclerosis without thrombosis. The changes in the electrocardiogram represent a complete discussion in themselves and will not be considered in this paper. Suffice it to say that tracings should be taken daily if necessary, inasmuch as serial tracings will yield almost a 100 per cent accurate diagnosis in acute closures.

Under complications we must consider the following: the various rhythm disorders, such as premature contractions, auricular fibrillations and

auricular and ventricular tachycardia, as well as various grades of A-V disassociations and inter-ventricular conduction defects. The Stokes-Adams attacks of complete heart block may be the outstanding problem in the case under consideration. Emboli from the mural thrombus may occlude any vessel, possibly causing hemiplegia, thrombosis of the extremities or infarctions within the abdominal cavity, or pulmonary thrombosis. Rupture of the heart is a late complication and is the cause of sudden death in some cases. Pulmonary embolism is not commonly considered in these cases but in a group of 200 autopsied cases 6.5 per cent of the entire group were thought to have died from this cause¹⁷. Congestive failure accounted for 53.5 per cent of the deaths in this same series.

Differential diagnosis is best covered by citing Herrick's list of conditions which have been wrongly diagnosed coronary occlusion. They are:

1. Angina pectoris.
2. Arrhythmias; premature beats, fibrillation, flutter and paroxysmal tachycardia.
3. Neurosis; neurocirculatory asthenia.
4. Malingering.
5. Pericarditis.
6. Diseases of the aorta; dissecting aneurysm and ruptured aneurysm.
7. Pulmonary conditions; pleurisy, pneumonia, pneumothorax, massive collapse due to cancer of the bronchus and pulmonary embolism.

Treatment of coronary sclerosis and thrombosis divides itself into that of prevention and treatment of the acute episode. The preventive treatment can only be presumptive since evaluation is difficult. The most commonly accepted precept is to avoid the stress and strain so prevalent in modern living. Opposed to this is the finding of coronary thrombosis in many individuals who from all history and appearances have led exemplary lives as regards stress and strain. Of high importance is one factor over which we have no control, namely a cardiovascular family history. Hines' evidence that hypertensive diathesis is a dominant Mendelian factor suggests that coronary sclerosis may also be such a dominant trait, becoming active under appropriate circumstances. Adequate rest is worthwhile for any one who is thought to have coronary sclerosis. By adequate rest is meant both physical and mental rest. A short period of relaxation following the noon meal is very effective. Regular vacations under good circumstances should be advised. Weight reduction in overweight individuals in middle age is considered of value. The question of smoking has been a moot point; but when we remember that smoking definitely raises the blood pressure, increases the pulse

rate and causes a vasoconstriction of the skin capillaries we cannot escape the conclusion that smoking should be interdicted when considering preventive treatment.

Treatment of an acute thrombosis is distinctly an emergency requiring prompt use of the few therapeutic procedures available. I say few, because the outcome of an attack depends, except for rest, more on the size of the infarct and the ability of the individual to develop collateral circulation than on the treatment. Our chief aim in the treatment should be directed primarily to lessening the burden on the heart during the recovery stage and helping to promote the development of collateral circulation. Following this procedure we should arrive at the diagnosis quickly, with as little examination and history taking as possible. An adequate dose of morphine, be it a quarter or a half a grain, should be given at once and a second dose in twenty to thirty minutes if no relief is apparent. This relaxes the patient, quiets his apprehension and makes him rest, thus reducing the load on the heart. Morphine should be used liberally during the first few days or a week. After this period codeine can be substituted if there is still some pain. The judicious use of the barbiturates during the recovery period will result in a much smoother convalescence and a more cooperative patient.

The period of absolute rest in bed should be not less than six weeks, and longer if the patient had a severe onset with marked shock or any serious complication. Following this there should be a period of two to three weeks of guarded activity, the patient being limited to one floor. The exercise is gradually increased. After ten to twelve weeks mild stair climbing may be attempted slowly and the activity generally increased until about 50 to 75 per cent of normal activity is achieved. Thereafter it should never exceed the point of dyspnea or pain. Digitalis has a minor place in the treatment. The majority of cardiologists prefer not to use it except for evident decompensation and occasionally for auricular fibrillation which does not correct itself. Essex¹⁸ et al, found no significant changes in blood pressure and no effect on the mean coronary blood flow from subnauseating doses of digitalis in the trained dog. An increased strength of contractions is feared from this drug, and its use is still debatable. Ventricular tachycardia is a common complication. Some cardiologists believe that quinidine should be given routinely to prevent such a development, while others reserve its use for control of annoying or continued frequent premature beats and for treatment of ventricular tachycardia.

The need of oxygen is governed by the presence

of cyanosis and it should be given promptly by nasal catheter when indicated. The use of 100 per cent oxygen by mask is receiving attention and may be tried if cyanosis is not cleared by the usual method. Oxygen may be used for continued pain or dyspnea in the absence of cyanosis. Glucose in 25 to 50 per cent concentration is frequently given during the first few days with the idea of supplying adequate carbohydrates for maintaining the glycogen reserve. It also helps to remove the moisture in the lungs and controls nausea and vomiting. Saline is also used during the first few days to supply fluids and chloride lost through perspiration and vomiting. The only objections are the annoyance to the patient of the vein puncture and the sudden increased load on the heart if the solution is administered too rapidly. Adrenalin has a very definite place. It should be used at once when a Stokes-Adams attack occurs from an occlusion involving the bundle. The effect of adrenalin on coronary vessels is still a moot point. Venesection should be reserved for pulmonary edema, persistent hypertension or increased venous pressure. The xanthin derivatives have been a medical football of late. Experimental work by Fowler¹⁹ indicates that they are of some value. Wiggers and Green⁵ do not concur in this opinion. Smith⁴ believes that the best results can be obtained if the drugs are used early and that the value depends on whether the collateral circulation is functioning. My own impression is that they are of sufficient value to warrant a trial in most cases.

The diet should be liquid during the first few days, gradually being increased to soft foods and then to a general diet, depending on the patient's condition and appetite. There is reasonably good evidence in favor of using the 800 calorie regime for these patients. No attempt should be made to disturb the bowels during the first thirty-six to forty-eight hours, but mineral oil should be given liberally from the onset, and enemas ordered if needed. Visiting should be limited during the first two weeks; a prolonged visit tires the patient more than is apparent at the time because the patient feels he must engage in conversation in spite of his condition. Occasional visits after the first few days are helpful in maintaining the morale of the patient. Surgical treatment does not have a place in the therapy of acute thrombosis.

The cause of death was studied by Eppinger¹⁷ in 200 autopsied cases. He found that 32 per cent died suddenly; 53.5 per cent died of congestive failure; and 14.5 per cent died from other causes. The sudden deaths were due to myocardial rupture, ventricular fibrillation, Stokes-Adams attacks and pulmonary embolism. He stressed the

point that pulmonary embolism was found in 20.3 per cent of those dying suddenly. Of 107 patients dying of congestive heart failure, pulmonary embolism was the most important cause of death in 32.7 per cent.

The prognosis is important both to the physician and to the patient. The first attack is usually fatal in 50 to 60 per cent according to Basil Smith¹³. Master^{20 and 21} states that the first attack without heart failure is fatal in only four per cent but when there is some attending heart failure the mortality rate is increased to 30 per cent. Wolferth and Wood²² and others concur in the opinion that a posterior infarction carries a better prognosis than an anterior infarction. Master believes that the prognosis is better with a slow pulse than with one of 120 or more. Gallop rhythm carries a poorer prognosis than a normal rhythm. Galston²³ found that the mortality rate was increased with the respiratory rate above 28 due to reduction in vital capacity. A fever lasting longer than a week is greater than average and indicates a poor prognosis. Master feels that a persistent leukocytosis indicates a poor prognosis especially if this is high. Goodrich and Smith²⁴ state that a nonfilament count above 30 per cent after the fourth day is indicative of a large infarct with a poor prognosis. They also believe that lack of eosinophiles or less than 1.5 per cent in the first ten days is unfavorable. Gorham and Thompson¹⁶ in a study of 22 cases did not find that the differential white blood count, by the Schilling method, was of value in a prognosis. These authors do not believe that any conclusions regarding severity, prognosis or time when healing occurs can be drawn in any particular case from the sedimentation rate. A persistent elevation of the nonprotein nitrogen, or a sudden rise, indicates a serious prognosis. I believe the severity in the drop in blood pressure has some prognostic significance as does the speed with which it returns to pre-existing levels. A persistent hypotension would indicate a poor prognosis. The time interval between the onset of pain and objective findings, such as temperature rise, drop in blood pressure and electrocardiographic changes, has some prognostic significance. The shorter the interval the graver the prognosis. Coronary thrombosis still remains a difficult problem requiring good judgment and careful attention. The outlook in these cases according to Galston should be guarded yet hopeful.

313 Higley Building.

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PHLEBITIS AND THROMBOPHLEBITIS OF THE LATERAL SINUS*

GORDON F. HARKNESS, M.S., M.D., F.A.C.S.
Davenport

In considering the subject of phlebitis, thrombophlebitis and thrombus of the lateral sinus, Brown¹ coined an axiom when he wrote that "the general symptoms are the indications for surgery and the local signs are the guides to operative procedures." Kopetsky¹² stated that the indications for surgical therapy and the methods of application are standardized. This may be so in the minds of some individuals, but a perusal of the literature is evidence that to many the subject is still controversial. In order to place some limitation on the present discussion the author will eliminate the subject of primary thrombus of the bulb which usu-

ally occurs only in children. The presence of the squamopetrosal sinus during this period of life, and its general absence in adult life, probably accounts for the occurrence of such a condition following neck infections in children. Likewise, the propriety of sinus surgery at the time of the mastoid operation, with a frank necrosis of the sinus wall, will not be discussed. Surgical interference is conceded as self-evident. This limits the discussion at hand to the hypothetical premise that a simple mastoid operation has been performed upon the mastoid cavity, without differentiating acute or chronic mastoiditis, but with emphasis placed upon the acute types of mastoiditis.

Coates, Ersner and Persky,² in a review of 969 mastoidectomies, reported fourteen cases of the pathology under discussion, or a 1.4 per cent incidence. Meltzer³ reported on 4,961 mastoidectomies from the records of the Massachusetts Eye and Ear Infirmary for a twelve year period from 1921 to 1932, and found an incidence of 3.2 per cent.

The time of the mastoid operation, while not directly pertinent to this discussion, does enter into the subject indirectly as to final results. Certainly American surgeons do not consider a mastoidectomy as much in the emergency classification as they did years ago. Dean,¹ working with Hartman, advocates delay in operation after the diagnosis has been made, and building up the resistance of the patient so that he will be a better operative risk. Lillie⁴ qualified his agreement with this point of view by a plea that each case should be individualized. With a diagnosis and a purulent lesion, Kopetsky¹ advocated an immediate attack, and he is supported in his view by Furstenberg and Tobey. Rather significant is the comparison of two reports on otitic septicemia. Lillie⁴ reported 52 cases, 33 before operation with one death, and 19 or 36 per cent after mastoid operation with six deaths, with a mortality rate of 13.2 per cent. Glass⁵ of England reported 63 cases, eighteen prior to operation, and 45 or 71 per cent after operation, with a mortality rate of 57 per cent. The significance comes in the editorial comment⁶ that English surgeons operate earlier than American surgeons.

Individual circumstances make every case a law unto itself, and it is impossible to formulate rules which could apply to all cases; yet one should have a pattern for a logical procedure based on pathology and symptomatology. A thrombophlebitis of small or large venous radicles generally precedes as causative factors all intracranial suppurative conditions of aural origin. Acceptance of Kopetsky's classification of acute mastoids into the

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hemorrhagic and coalescent types serves best in following this pattern.

Involvement of the lateral sinus can be thus accounted for; extension through small venous radicles as in the hemorrhagic type, or by continuity of tissue as in the coalescent type. In the former the inflammation of the mucosa and vessels within the bone itself, causing minute thrombi, may give rise to a concurrent septicemia. Through continuity of tissue in the coalescent mastoid we may have a phlebitis and extension of the same via the venous wall without any thrombus formation. However, involvement of the venous wall by direct extension is generally preceded by pressure from adjacent inflamed tissues. The resultant slowing of the blood stream, the presence of infective microorganisms, and through continuity of tissue a break in the endothelial lining, form the essential background for a thrombus formation. The formation of a thrombus in any case is primarily a protective measure. The extension, however, from smaller venous radicles, may occur without any endothelial break in the lateral sinus wall. The thrombus itself is an infected mass of tissue, the additional blood clot acting as a rear guard defense against an advancing foe. The clotting about an area of endothelial involvement is an advance of protective elements to wall off the infective microorganisms from the general circulation. The organisms may be limited to the center of the thrombotic mass, and it must not be forgotten that this has probably occurred many times and been followed by recovery, without sinus involvement ever being suspected.

Since the premise of this discussion assumes the performance of a simple mastoid operation, we will state merely that the operation, in spite of chemotherapy, still can be logically justified, because only by surgery can certain types of bone pathology be removed, adequate drainage be provided, and further dissemination of the disease be prevented. Clinical symptomatology and pathology having justified the operation, it must be remembered that the appearance of the sinus plate is no indication of the involvement of tissues lying beneath it. Removal of the sinus plate does not increase the operative hazard, but injury to the sinus wall does. Only by its removal may we discover a perisinus abscess. Exudates and granulations on the sinus wall may be entirely protective, and should not be disturbed, without other indications, such as positive blood cultures and extreme sepsis. Meltzer³ concludes that the appearance and palpation of the sinus wall give no indications of intravenous pathology. Kopetsky¹ asserts that a sinus which pulsates is a positive indication of a lateral sinus thrombus and that a sinus which

does not pulsate may or may not contain a thrombus. It is doubtful if the first part of his statement would be generally accepted as 100 per cent true. After the mastoid operation sepsis may progressively increase or there may be a latent period. During the period prior to the mastoid operation, or after the operation and during the period spent in establishing a diagnosis of lateral sinus involvement, all medical means should be used to improve the patient's condition. In arriving at a diagnosis the pathology presented in the mastoid cavity must be kept in mind. The fact that the hemorrhagic mastoid almost invariably is caused by the hemolytic streptococcus and by blood changes concomitant with the mastoiditis, indicates systemic disease.

Rosenwasser⁷ concludes that the pneumococcus Type III is the only form of this organism which causes sinus thrombosis. To the author the significance of this lies rather in the known extreme virulence of the Type III organism and its frequent incidence, rather than in any inherent exclusive ability to create a thrombus. Warning signs during the quiescent period are an unsatisfactory convalescence, some sweating and slight chilliness with vague pains. It has often been said that these patients do not appear sick, and perhaps they do not, in proportion to the developing complication. A pulse which is not in proper relationship to the temperature is another sign, and one that the experienced clinician recognizes as significant of approaching trouble. Succeeding the mastoid extirpation or after the latent period, the spiked temperature curve with high fever and sudden rises followed by equally rapid declines, is characteristic, particularly so when accompanied by a definite chill.

This picture is common to septicemia, sapremia and pyemia; and differentiating between a phlebitis and thrombophlebitis is extremely difficult. In phlebitis the onset tends to be less explosive and the temperature may remain persistently high, or when it recedes it may do so more gradually and fail to reach normal, a modified remittent type. Ersner and Myers⁸ reported elevation of temperature in 87.5 per cent of their cases, and chills in 47.5 per cent. Tobey¹ reported eleven out of 73 cases of thrombosis without elevation of temperature, and chills in 50 per cent of cases. The temperature and chills are not by themselves definite diagnostic guides.

There is generally a moderate leukocytosis. A very high count suggests the possibility of other complications. The total white count is not so important, and a differential Schilling index with immature cells is not significant from a diagnostic standpoint, but with repetition and a shift to the

right or left, it is of prognostic value. Secondary anemia with loss of hemoglobin is indicative of a hemolytic organism. To digress, it is here that we have the real indication for blood transfusion, preoperatively and postoperatively. Some make use of blood transfusions in septic conditions irrespective of the blood picture. New oxygen carriers and some dilution of the infected blood stream takes place, but definite results from blood transfusion as a means of immunologic therapy are lacking. As a means of temporary replacement of fewer and debilitated oxygen carriers, blood transfusion constitutes one of our most important therapeutic measures, to be used preoperatively and postoperatively.

The presence of a bacteremia is granted a most important diagnostic position. Eagleton¹⁴ states that one positive blood culture is a definite indication for surgical interference. Hartman¹ believes that positive blood cultures may be seen early in the course of any acute respiratory infection, upper or lower, but tend to become negative in a short time unless some large vessel is involved. Meltzer³ feels that a positive blood culture by itself is no indication for immediate operation. The presence of organisms in the blood stream can best be established by taking the blood just before or after a chill. Central pneumonias in children may confuse the picture. The possibility of an acute septic endocarditis, particularly if the organism has been a streptococcus viridans, should be eliminated. The presence of embolic petechia, mucous (conjunctival and in the mouth) and cutaneous (on the neck and chest), are significant since they do not occur in thrombophlebitis. Repeated blood cultures are of proportionately greater diagnostic value.

Differentiation, through the number of colonies obtained from the jugular vein as compared to those from a peripheral vein, may have some merit but will hardly be generally practical. Likewise a puncture of each jugular vein and a comparison of the number of colonies, when the question arises as to which lateral sinus is involved, is a technical procedure which will not find general application. The thrombus is primarily a protective mechanism, and it may successfully wall off the bacteria, particularly in the coalescent mastoid.

Negative blood cultures are no indication to postpone surgical measures. Kopetsky⁹ reports 17 negative blood cultures in 26 cases of involved thrombophlebitis. When it does appear it is likely to appear later than in the hemorrhagic type. In fact, in the latter it may appear without any thrombus, being systemic from the beginning. Meltzer³ reports 50 cases with negative blood cultures in which 30 had lateral sinus thrombosis. A positive

blood culture, however, after a mastoid operation, and with careful clinical differentiation, is a most significant finding.

The presence of a choked disc is important. Dean¹ reports an incidence of 33.5 per cent in latent cases from the University of Iowa and 25 per cent from Washington University. Tobey¹ reports a general incidence of ten per cent. The papilledema is usually unaccompanied by hemorrhage and milder than that accompanying cerebellar or temporosphenoidal abscesses. Involved venous vessels do not in themselves produce cerebral symptoms. Meningeal irritation may be evidenced by headache. Stases following a thrombus may be responsible for transient cerebral symptoms without actual cerebral pathology. Pain back of the mastoid may accompany a perisinus abscess or a phlebitis of the mastoid emissary vein. Edema or thickening with tenderness on deep pressure over the mastoid emissary vein is significant of a probable lateral sinus thrombosis. The Queckenstedt test, originally used to indicate a subarachnoid block, is modified in the Tobey-Ayer test to indicate venous obliteration. While Meltzer³ reports it of positive value in 75 to 80 per cent of cases, Crowe¹⁵ and associates do not use it, fearing to produce a meningitis in the presence of a septicemia. This objection seems individual rather than general.

After excluding poor technic, the position, not changing the patient's position for testing each side, using the upper side for jugular pressure, not testing with spinal fluid that approximates 150 milligrams pressure, and not making pressure definitely against the transverse cervical process, there still remain anatomic abnormalities that interfere with correct interpretation. The right lateral sinus is usually larger. The cerebral sinuses are simply passages between two layers of dura, lined with endothelium, without valves and possessing most complete anastomoses. The blood flow is maintained by negative pressure. Obliterating thrombi grow slowly; they permit anastomotic readjustment and seldom cause any circulatory disturbance. Irish,¹⁰ quoting Lenser in the examination of 1,022 skulls, found only three per cent of jugular foramina on one side that would have been unable to accommodate a vein over three-fourths of a millimeter in diameter. Furstenberg¹ has reported an absent lateral sinus, the sigmoid connecting with the superior petrosal; a double sinus; a constricted jugular foramen with large emissary vein, lateral sinus lakes; sigmoid pouch, with large emissary vein with patent petrosquamosal sinus; lateral sinus external to the skull and a persistent petrosquamosal sinus. Mellinger¹¹ in a study of 47 heads found the jugular foramen to vary as

much as fifteen by fifteen millimeters on one side and four by five millimeters on the other side in the same skull. The mastoid emissary vein in his studies varied from five by eight millimeters to one by one millimeter.

Anatomic anomalies can give rise to false interpretations in the Tobey-Ayer test. Because of the adaptability of the collateral circulation, in the presence of a thrombus formation it would seem that there would be less chance of error in making the test before venous compensation had been established. Tobey¹ claims 80 per cent correct interpretations; Hartman supports him, stating the test was correct in 30 out of 35 cases, and stresses repeated tests. Tobey emphasizes its greatest value in bilateral cases. The manometric test has a definite diagnostic place. Even with these aids the diagnosis is not a simple matter. Time does not permit a complete enumeration of minor points. A delayed erysipelas may be most confusing. No one sign is sufficient unto itself and the patient must be studied as a whole, and also as an otitic problem.

Once the decision to operate has been made, the question of what type of surgery will give the best results remains to be decided. There are differences of opinion as to lateral sinus surgery itself and the old question of the jugular vein confronts us. Few have the opportunity of such close teamwork as is described by Dean¹ in his work with Hartman. Preoperative supportive treatment and chemotherapy are important and should be judged through clinical interpretation of the patient's condition.

Hartman¹ calls attention to a position of false security that we have noticed. Sulfanilamide will bring about a marked improvement, but also the development in local pathology of a condition analagous to a cold abscess. However, the original focus is not sterile and early discontinuance of medication may cause a recurrence of symptoms. Furthermore, it is beyond reasonable expectation of chemotherapy for normal resolution of tissues always to occur. Surgical indications will always remain. Sulfanilamide does, however, constitute the greatest advance in medical therapy we have had for many years. While its greatest efficiency is demonstrated in infections of the hemolytic streptococcus, it is not without value in pneumococcal infections. It is to be hoped that Dagnan, M.B. 693, will substantiate early reports and be as effective in pneumococcus infections. Perhaps even better results may be expected, because the pneumococcus is encountered in the coalescent mastoid when extension is predominately by continuity of tissue. Presuming that at the time of the mastoid operation, clinical symptoms being severe,

the sinus wall has been uncovered, with normal appearance in the hemorrhagic type, and the same in the coalescent type, or with a perisinus abscess and even granulations present, the lateral sinus is not disturbed. If blood cultures are positive, investigation of the condition of the sinus is recommended, more positively in the coalescent type than in the hemorrhagic type. In the latter, systemic disease is present and the removal of the focus may be sufficient. In the coalescent type a positive blood culture is an indication of general sepsis, not coincident with but after nature's forces have failed to wall off a disease produced by continuity of tissue.

After the primary operation if sepsis continues to be evidenced clinically or by blood culture, sinus surgery is indicated in the hemorrhagic type regardless of the appearance of the sinus wall. In the coalescent type we may generally expect a greater incidence of wall changes. There is no clinical means of differentiating a phlebitis from a thrombophlebitis until after the sinus itself has been explored. The exploratory needle is generally decried, because of faulty interpretation and possible injury to the opposite wall. To the author the greatest contraindication is that it may be used as an indicator for sinus surgery when the decision should be made from other general and local signs. When surgery is not carried out, after the needle has been used, the break made in the endothelial lining is a direct insult and a stimulus to the formation of a thrombus. A phlebitis demands blocking off infected tissue even more than an actual thrombus. The needle disregards this surgical indication.

Sinus surgery demands free exposure proximally and distally. Essentially it is an attempt to block off and drain an infected area. In the case of a phlebitis, the exposure should attempt to go well beyond manifest wall changes; with the thrombus it should go beyond the thrombus if possible. The thrombus is primarily a protective mechanism. The veins normally flow under negative pressure, there are no valves and the current easily reverses itself. Dixon¹³ states the extension of a thrombus is always retrograde and has support in this contention that it at least predominates. This has led some operators⁸ to incise the sinus wall and make no attempt to remove an occluding thrombus, relying on drainage. The general consensus of opinion favors free incision and removal of the thrombus by gentle suction. If this is not accomplished easily at the bulbar end, the thrombus is not disturbed.

Jugular ligation is a much debated question. Dixon¹³ states the jugular vein should never be ligated and that the ligation does not stop the prog-

ness of the disease. Those who ligate acknowledge the presence of other channels, but maintain they have closed the main return channel. This can be conceded in phlebitis and a mural thrombus, but not in an obstructing thrombus. Those against ligation quote many statistical reports. Krepusca⁸ in 295 cases reported a mortality rate of 56 per cent ligation as compared to 15 per cent without. Opposing this Portman¹² reports 100 per cent cures in eight years' work, stating that all sinus cases demand ligation. One can only receive a 100 per cent report with a certain skepticism. Pagano² thinks ligation is the most important measure in stopping the spread of the infection. Kommer and Jones² believe the results are equal in either procedure. Roth² reserves ligation to definite infection of the vein within the neck. Almour,¹² supported by Kopetzky and others, while emphasizing that every case is a law unto itself, states that ligation may be postponed for a thrombus with no marked sepsis and negative blood cultures. With sepsis, mural thrombus or thrombus at the bulb and a positive blood culture, immediate ligation is recommended.

Where expressions of opinion vary so much, the logical course generally lies somewhere in between. One cannot follow statistics blindly and the higher mortality rates following ligation may not have been due to the ligation, as contended, but to the fact that the ligated patients were the most severely ill individuals. The same may be said for reports showing greater metastases after ligation.

Certainly the practice, once defended, of primary ligation of the jugular vein prior to sinus surgery, has passed. Ligation of the jugular vein may not be so simple as in the presence of an acute adenitis, or if the vein is collapsed. In this latter instance the most logical reason for ligation ceases to exist. Obviously definite evidence of thrombus of the internal jugular vein by palpation in the neck region is rare. Particularly because of recent advances in chemotherapy, a logical procedure seems to be to reserve ligation. Clinical evidence supports the wisdom of observing the effects of sinus obliteration and drainage. If sepsis continues, ligation may be undertaken as a separate procedure. Occasional anatomic anomalies increase the hazard of ligation beyond ordinary percentages. Ligation before collateral circulation is established is undesirable.

SUMMARY

The diagnosis of phlebitis and thrombophlebitis of the lateral sinus is not simple. General clinical signs, temperature, pulse, chills, general septic conditions, blood cultures, fundus findings, manometric findings, all have their place. Correlation

of findings, not any one sign, will bring one to the correct diagnosis. Local appearances can be most deceiving. The indications for sinus surgery depend more on general conditions. A phlebitis may require blocking of the sinus more than does a thrombus. The differential diagnosis of a phlebitis and a thrombus is practically impossible. The type of mastoid infection influences subsequent pathology and therapeutic intervention. The logical trend is not to consider mastoiditis and sinus involvement in the same emergency classification as formerly. Supportive and medical treatment, prior to and after each surgical procedure, has assumed greater importance with the advent of chemotherapy (sulfanilamide). Surgical indications still survive, and consistent reasoning would advocate first, the mastoid operation followed by close observation of the clinical course, and second, sinus surgery and additional clinical observation, with ligation as a third procedure, if it seems necessary. No general rule can be applied universally, and individual attention for each patient logically permits surgical procedures at variance with the general rule.

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Discussion

Dr. J. K. Von Lackum, Cedar Rapids: The author has covered the field of lateral sinus phlebitis and thrombophlebitis very thoroughly, limiting his discussion to the subject as a complication of mastoiditis. I will not agree with Dr. Harkness in his statement that procedures are controversial, but insist that each suspected case of this disease is neces-

sarily highly individualized. May I also add that our best treatment of this dreaded complication lies in its prevention, which means considerate, thorough, and painstaking care of all otitis media cases.

To summarize the author's main points, I wish to submit the following as a skeleton to consider; given a suspected lateral sinus involvement, we should proceed cautiously because its treatment is surgical, once the diagnosis is made. Other possible septic foci must be ruled out by careful differential diagnosis.

A. Positive "go-ahead" signs are:

1. Bacteriemia, especially if repeated.
2. Spike temperature course with chills and quick remissions.
3. High white blood count with Schilling shift to left.
4. Pulse out of proportion to temperature.
5. Patient looks sick, sweats, and has a clammy skin.
6. Failure of medical treatment after a reasonable interval, especially so since the advent of sulfanilamide.
7. Positive eye grounds.

B. Rational surgical procedure:

1. Pulsating sinus is always a thrombosis.
2. Carefully explore the mastoidectomy to determine if it really was complete, recognizing that now we do not do simple mastoidectomies, rather complete ones.
3. Expose sinus as far as pathology extends.
4. Pack and drain surgically.

C. Ligation:

1. Ligate internal jugular vein if clot is not firm. If symptoms do not subside may ligate a few days later.
2. Collateral circulation will reestablish itself even if both veins are tied off.
3. Ligation is possibly the least essential procedure.

D. Procedure:

1. Remove plug in six days; if bleeding is profuse, repack open.
2. Blood transfusions regularly if necessary.
3. Protosil therapy.

E. Prognosis:

1. Early cases usually give more favorable prognosis.
2. Extension by contiguity is more favorable than by thrombosing veins.
3. Metastases are bad.

Thrombosis without sepsis must be recognized. Its treatment is medical and partially surgical. Each individual case being a law unto itself, I am certain the less we see this complication the happier our practice will be.

Dr. Henry C. Schmitz, Des Moines: The management of lateral sinus infection has been the incentive for considerable discussion during the past few years. Out of this wealth of comparative viewpoints we are developing a keener sense of responsibility

in the care of each individual case as it presents itself. Dr. Harkness apparently leans toward conservatism based upon pathologic and clinical facts, emphasizing the acute types of mastoiditis.

These patients are dangerously ill. The mortality rate, even in the most experienced and efficient hands, is entirely too high for us to consider lightly the most appropriate course to pursue. Symptoms may be atypical and confusing. Our chief concern is metastasis with its accompanying mortality and morbidity ratio. Obviously it is imperative that we have the diligent cooperation of the internist, the neurosurgeon, the pathologist, the roentgenologist, and in some cases the urologist. Are we positive that metastatic damage has not already been established at the time we direct our surgical eye to the local source of circulatory transmission of a septic process?

Comparative figures between ultra-conservatism and the conventional routine of jugular ligation may be interesting. Mygind, in his clinic in Copenhagen, reported a series of cases with 71 per cent recoveries with nothing more than a simple mastoidectomy. The lateral sinus was not opened and the jugular vein was not ligated. Greenfield, in an analysis of these cases, showed that in 41 per cent there occurred severe pyemic symptoms and extensive metastasis. Meltzer reported metastasis in 44 out of 151 cases, all of which were ligated.

I doubt if any of us would feel justified in following the routine management carried out by Mygind. On the other hand, Meltzer recognizes morbidity of about 29 per cent in his series. The general condition and resistance of the patient are variable factors. Up to the present time, regardless of divergent opinions of capable men as to proper treatment, the mortality rate remains practically uniform.

Dr. Harkness cites Kopetsky's classification of mastoid infection into the hemolytic type and the coalescent type. In view of the fact that the hemolytic streptococcus has a predilection to thrombus formation in the small venous radicles, too early mechanical interference with nature's efforts to wall off this intrusion might precipitate undesirable complications. On the other hand, the slow-forming coalescent types might prompt us to delay the mastoid operation resulting in necrotic softening of the sinus plate, perisinus infection and eventual pathology in the vessel wall. Comparative x-rays of an uncomplicated suspected mastoiditis are helpful in determining the time for surgery. Surgery should be delayed into the third and fourth week wherever possible. After that period many are likely to show necrosis of the sinus plate and perisinusitis. Selective surgical timing is important.

Perhaps many potential cases of sinus involvement are prevented by careful scrutiny of the sinus plate at the time of the original mastoid operation. This is particularly true in the small diploic type of mastoid in which the lateral sinus lies closer to the mastoid antrum than in the pneumonic types, and is, therefore, more accessible to the flow of pus. A

thin wall through which organisms might enter, producing a perisinusitis, should be removed, with especial attention to wide exposure and smooth margins. Delicacy of manipulation is imperative in order to prevent traumatism to the vessel wall. Drainage material should be soft in order to prevent pressure necrosis during convalescence. These cases usually progress to uneventful recovery even though small unrecognized protective thrombi may be present. An exposed vessel in all cases in which there is the slightest excuse for suspecting perisinusitis is far more desirable than an occasional one overlooked harboring dormant pus beneath the plate, eventually involving the vessel wall. Kopetsky reports about 25 per cent of his cases showed evidence of perisinus infection at the time of the original mastoid operation.

Because of the high mortality and morbidity rate it appears logical that we must not delay thorough inspection of the vessel to the point of metastatic damage after typical symptoms send out the warning signal. In the case of a small mural thrombus, with free bleeding from both bulbar and torcular ends, I see no reason to dispute the practice of simple tight gauze packing at both ends without ligation after inspection. Postoperative reaction is less stormy than in cases ligated. There is less interference with collateral circulation and less traumatism. Some authors contend that packing the sinus at both ends produces artificial thrombi less virulent than the original one centrally located. Recognized anterior bulbar extension of the thrombus, having a tendency to break down with evidence of descending infection, certainly justifies jugular ligation. Does the resulting retrograde extension of infection, described by some investigators, account for a certain percentage of mortality statistics? In phlebitis without a thrombus this may prove a source of confusion. The phlebitis may have extended beyond the area we attempt to block off.

As for sulfanilamide, is it the answer to our problem? I prefer neoprontosil to the point of blood tolerance. It is supposed to be less toxic than sulfanilamide. There is no doubt about its efficacy in meningococcic and hemolytic streptococcic infections. When one observes intracranial complications of otitic origin, cloudy spinal fluid, positive spinal cultures and cell counts running into several thousand, increased pressure and a positive Kernig's sign; and we see such clinical evidence melt away under its influence, we are compelled to marvel at results obtained in cases formerly presaged among fatalities in the general prognosis. The bacteriostatic action of the drug should reduce the incidence of metastasis in suspected phlebitis and thrombophlebitis of the lateral sinus where the offending organism is the streptococcus. Sulfapyridine combined with serum therapy may prove to be equally effective in pneumococcic infections. I doubt very much whether either one of them would prove of much value in a walled off focus of infection which requires local treatment for its eradication.

TULAREMIC PNEUMONIA

CASE REPORT

I. ZIFERSTEIN, M.D., Mt. Pleasant

The patient, a white male, thirty-one years of age, was first seen on the morning of October 31, 1939. At that time he had a temperature of 102.6 degrees and complained of generalized aches and pains. He had had a chill during the preceding night.

On examination the patient was flushed and exhibited mild prostration. The physical examination was otherwise negative. There was no adenitis, and no ulcer or other suspicious lesion anywhere on the body. The blood count was as follows: hemoglobin, 85 per cent (Daré); red blood count, 4,860,000; white blood count, 13,200; polymorphonuclear neutrophils, 80 per cent; lymphocytes, ten per cent; monocytes, nine per cent; and eosinophiles, one per cent. The urine was negative except for a trace of sugar. Subsequent urine examinations showed no sugar.

Questioning elicited the information that on October 22 the patient had shot and dressed several rabbits without using gloves, and he had also shot some rabbits on October 28 and 29. On returning from hunting on October 29 he first complained of joint pains. The following day he complained of some malaise and that night he had his first chill.

During the next few days the patient's condition became progressively worse. There was a remittent fever which rose as high as 103 and 104 degrees with a remission to 101 degrees, usually during the middle of the day. The patient developed a slight cyanotic flush and exhibited moderate dyspnea on slight exertion in bed. There was some cough with very little sputum which, on one occasion, was blood tinged. Examination of the sputum showed very few organisms, some of which were pneumococci. The latter did not type with any of the thirty-two typing sera. No acid fast bacilli were found and a guinea pig was inoculated.

An x-ray of the chest on November 4 showed the upper half of the right lung partially obliterated by a dense shadow which appeared to originate in the hilum and extended fan-shaped toward the periphery. Through the lower half of the right lung there were many small areas of what appeared to be peribronchial infiltration. The left apex contained shadows, the nature of which was not clear. In the fourth and fifth left interspaces there was another density similar to that described on the right side but less extensive. In view of these findings sulfapyridine therapy was instituted, although no signs of lung involvement

could be found on physical examination. The first physical signs of involvement of the lungs were noted on November 5. There was impaired resonance over the right middle lung field posteriorly with medium râles.

A blood specimen was obtained on November 4 and sent to the State Hygienic Laboratories for agglutination tests. These were reported negative for tularemia, undulant fever, paratyphoid A and paratyphoid B. There was a positive agglutination for typhoid to a titer of 1/80 (patient had received a course of typhoid-paratyphoid immunization about two months prior to this illness). Blood culture was sterile. On November 6 the dyspnea and cyanosis became more marked and the patient was given oxygen by intranasal catheter. His temperature ranged between 104 and 105 degrees with occasional remissions to 101 and 102 degrees. Another blood specimen was obtained November 9, and several days later a report was received from the State Hygienic Laboratories of a positive agglutination for tularemia to a titer of 1/640. The agglutination for undulant fever was negative, and the agglutination for typhoid fever was 1/40.

The patient became progressively worse in spite of adequate therapeutic doses of sulfapyridine and supportive treatment. He became irrational and actively delirious. There were now râles and impaired resonance in both lungs, but no frank signs of consolidation. The patient died on November 11.

At the postmortem examination both lungs were found to be the sites of extensive pneumonitis. The right upper lobe was completely consolidated and resembled the gray hepatization of lobar pneumonia. The middle and lower lobes showed more recent consolidation, as did the left upper lobe. The left lower lobe was fairly free of involvement. The spleen was large and soft but did not show any nodules, nor did the liver. An incidental finding was a moderately enlarged heart and a chronic adhesive pericarditis.

Microscopic examination of the lung tissue showed patchy areas of necrosis infiltrated by chronic inflammatory cells. Other areas were present with edema and chronic and acute inflammatory cell infiltration. Large phagocytes were seen with hemosiderin in their cytoplasm. Cells suggestive of epithelioid cells were present. No giant cells were seen. Acid fast stain showed no organisms resembling tubercle bacilli.

COMMENT

This is a case of tularemia of the so-called typhoid type, characterized by marked systemic symptoms and massive involvement of the lungs.

The absence of a skin lesion and adenitis obscured the diagnosis until a positive agglutination for tularemia was found on a blood specimen obtained two days before death. The diagnosis was definitely established by the fact that the negative agglutination during the first week of illness turned positive during the second week, and by the microscopic examination of the lungs. The picture was one of massive involvement of the lungs, whereas the lymph nodes, liver and spleen were spared. The course was rapid, death occurring on the twelfth day of illness.

CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

Hospital Staff Meeting, December 19, 1939

EXPERIMENTAL AND CLINICAL TRICHOMONAS VAGINITIS

RAY E. TRUSSELL, B.A., Iowa City
Department of Obstetrics and Gynecology

In 1836, a French physician, Donne¹, wrote a brief letter to the French Academy of Science describing a new animalcule of a protozoan nature, which he had observed in the purulent vaginal discharge of a woman suffering from vaginitis. Because of the structural details which he thought he saw he called this previously undescribed form "Trico-monas vaginale", thus establishing a new genus of protozoa with the human vaginal form as the type species. Since that time not only have the mouth and intestinal tract of man been shown to harbor trichomonads but members of the genus have also been found throughout the animal kingdom chiefly as lower intestinal tract parasites.

The vaginal trichomonas as observed in fresh vaginal discharge is oval or pear shaped, somewhat larger than a pus cell but smaller than an epithelial cell. At the blunt anterior end lively movement is developed by the action of four anterior flagella. The wave-like movement seen along one side is due to an undulating membrane extending from the anterior end about half way back along the body. Protruding posteriorly there is a fine pointed rod, the axostyle, which is continued through the body as a sort of skeletal support. The movement of the organism is of a jerky rotating character, and it assumes many different shapes readily squeezing between epithelial cells or other debris. It is often seen attached to epithelial cells by the axostyle.

The majority of the known species of trichomonads are harmless parasites of the lower in-

testinal tracts of their respective hosts. It would seem that only when the parasites are found in other locations are they capable of initiating a disease process. *Trichomonas* genital tract infections in cattle cause vaginitis, abortion and pyometra. There is also a frequently fatal trichomonas infection of turkeys in which nodular ulcerative lesions are produced in the crop. A somewhat similar infection exists in pigeons and certain other birds.

In general, human oral and intestinal trichomonads are no longer regarded as pathogenic, but the pathogenicity of the human vaginal trichomonad has been the subject of considerable controversy. The frequent association of trichomonas with abnormal discharge and vaginal inflammation, and the disappearance of these findings after eradication of the parasite, have led many investigators to regard the organism as the cause of the symptoms. On the other hand, the varied bacterial flora usually present, and the discovery of trichomonads in women with no evidence of vaginal disease, have offered evidence to the contrary. Obviously this question can only be settled by inoculation of pure cultures of *Trichomonas vaginalis* into human vaginas in which no trichomonads are found and no evidence of inflammation exists.

Several investigators have attempted unsuccessfully to obtain pure cultures of *Trichomonas vaginalis*. Some have even predicted that isolation could never be accomplished because the protozoa allegedly require living bacteria for food. In the past three years we have made many unsuccessful attempts to get a pure culture of these protozoa. The organisms could be freed from bacteria by various washings and micropipette technics but the media used were inadequate for the growth of isolated protozoa. It was then decided to attempt the development of a medium which would be truly adequate for the growth requirements of the protozoa. This study was begun last summer at the Lakeside Laboratory under the supervision of Doctor Theo. Jahn. Several cultures of *Trichomonas vaginalis* with bacteria were kept growing in the older media. Within two weeks it was realized that one of the cultures, originally obtained from a case of vaginitis, showed no evidence of bacterial growth; apparently the protozoa had overgrown the other living forms. This culture was inoculated into the eleven media combinations being tested at the time, two of which supported the growth of the trichomonads. From that time, June, 1939, a pure culture of *Trichomonas vaginalis* has been maintained in media consisting of liver infusion, human blood and rice powder. Smears and gross appearance have of-

fered no suggestion of bacterial growth. In addition aerobic and anaerobic cultures in sixteen different bacteriologic media incubated for eleven days have remained negative. The organism grows only at about 37 degrees Centigrade and is very fastidious in its growth requirements.

The pathogenicity of this organism has been explored by human inoculations. From time to time a total of twenty-four women in the last trimester of pregnancy, who were found to have normal vaginal discharges free from trichomonads, were inoculated with the pure culture. Nineteen were refractory to the attempted implantation and the organisms were never recovered; but five women yielded the trichomonads on subsequent examination after an average incubation period of six days. One showed no local changes and was regarded as a carrier. Three developed moderate, purulent, frothy discharge and mild inflammatory reddening of the vaginal mucous membrane or introitus which persisted for varying lengths of time. Subjective complaints of soreness were offered by two of the three. The fifth woman developed a copious watery, purulent, frothy discharge with patchy reddening of the vaginal mucosa, and complained of persistent burning, itching, and chafing.

All of the inoculated women were gonococcus-free, both by culture and smear. Cultures were taken from two after the successful implantation of the trichomonads, and were negative for hemolytic streptococci (including *Streptococcus subacidus*, of which we have a culture*), staphylococci and colon bacilli. One of the moderately inflamed vaginas yielded yeast-like fungi on culture, but inasmuch as these fungi had been present before inoculation without evidence of disease it is doubtful if they were important. The vaginal hydrogen ion concentration before inoculation as measured by the glass electrode technic² ranged from 3.9 to 4.6. All smears before and after inoculation showed a preponderance of Döderlein bacilli and there was no apparent alteration in the bacterial flora after development of the abnormal discharge. This evidence should not be interpreted to mean that the altered bacterial flora usually found in clinical trichomonas vaginitis has nothing to do with the extent of the irritation. It seems logical to assume that such bacteria may contribute something to the inflammatory process even though they are not essential to its development. These few experiments indicate that the *Trichomonas vaginalis* may be capable of inciting an inflammatory response in the normal human vagina. None of the experimental vaginitis was

*This culture was kindly furnished by the Eli Lilly Company.

of a severe character, but severe inflammation is not the rule with the majority of patients who have clinical trichomonas vaginitis.

Various authors have reported percentages of infected women ranging from six to fifty depending upon the type of patient. Most women with trichomonads are in the childbearing age, but the infection is seen in age groups from the newborn to the senile. Among the clientele of the clinic obstetric service it was found³ that 23 per cent of 500 women harbored trichomonads in the vaginal fornices. Only a few of these showed signs of inflammation; the rest were carriers. In another series of 200 women² in which cultures were taken from the middle vagina less than half this number of infections were detected. This difference may be explained in part by the normally highly acid secretion in the lower vagina in contrast to the less acid or alkaline discharge in the cervical region.

The probable source of the human vaginal infection is still unsettled. Many of the various proposals which have been advanced are not completely satisfactory. The claim that lower animals serve as a source of contamination for food, water and hands is offset by the morphologic differences and by the dissimilar cultural and temperature requirements of the animal trichomonads. Moreover, animal experiments carried out by others and by us have failed successfully to implant the human vaginal trichomonads in any of the lower animals by any natural route. Such experimental work at the Iowa State College, Ames, Iowa, in cooperation with Dr. S. H. McNutt of the Veterinary Research Institute, has so far supported the belief that the human vaginal trichomonad is restricted to the human vagina and to the male and female urogenital apparatus, and is incapable of surviving in any other animal host. (At the time this is written it appears that monkeys may prove to be the exception.)

The claim that human oral and intestinal trichomonads are identical with the vaginal form is contradicted by the fact that these two protozoa have different cultural requirements and will grow at room temperature while vaginal trichomonads grow only at approximately 37 degrees Centigrade. Furthermore, the fact that, particularly in this region, patients with vaginal trichomoniasis only occasionally have oral or intestinal infections is additional evidence against this concept.

Some authors feel that the infection is transmitted from one woman to another through improperly cleaned bathtubs and the waters of swimming pools or bathing beaches. Available evidence, however, indicates that the trichomonads are not found in such waters, and that sunlight,

chlorine and water rapidly kill the organisms. The belief that contaminated towels, other toilet articles, and toilet seats serve as a medium for transfer may be valid providing contact is made within a short time. Vaginal trichomonads, however, are notoriously susceptible to drying. No adequate proof of the existence of resistant cysts is available. One source of infection seems certain, but it is apparently so uncommon as to lack general significance. Several reports of infection of the male urethra, urinary bladder and prostate gland are on the record. These cases are generally discovered when a recurrent vaginitis leads to a search for the source of reinfection. This concept lends a venereal character to the infection but this viewpoint is not stressed since it may lead to unjustified marital discord.

Patients with clinical vaginitis associated with trichomonas infestation usually complain of excessive vaginal discharge, with or without vulval itching and burning, a feeling of fullness in the vagina, excoriation of the outer genital organs and inner aspects of the thighs, painful intercourse, and burning and smarting on urination. Exacerbations occur after the menstrual periods. Inspection of the external genital organs reveals inflammation of the labia and introitus and a variable amount of greenish-yellow, watery, frothy, vaginal discharge. In more severe cases this produces areas of excoriation in the perianal and inner thigh regions. Introduction of a speculum into the vagina may cause considerable discomfort. The vaginal walls appear edematous and diffusely reddened, and may show punctate hyperemic areas. An acute cervicitis may be present but is assumed to be incidental. Any adnexal changes discovered by bimanual examination are generally not regarded as part of the trichomonas infection.

Three methods are available for demonstrating trichomonads in the vaginal discharge. For practical purposes only one is necessary although two are routinely employed in this clinic. The quickest and most satisfactory clinical method is to examine the fresh discharge under the microscope. A portion of the discharge is mixed with a drop of saline on a glass slide and examined under the low power lens immediately. It is unnecessary to search at great length under the high power or oil immersion lens or to employ vital stains. The trichomonads are a little larger than pus cells, refractile, and show a jerky movement when all other elements in the field are quiet. Such a motile cell is always a trichomonad since there are no other protozoan parasites in the human vagina.

Culture media consisting of five per cent human serum in Locke's solution over a placenta in-

fusion agar slant are suitable for routine study. This method yields slightly more positive results than does direct microscopic examination. On the other hand cultures may be negative when the hanging drops are positive due to bacterial overgrowth killing protozoa. The complexity of the useful cultural media makes the method impractical for the general practitioner.

The trichomonads do not stain well with the usual bacteriologic technics. Occasionally gram stains with prolonged counter staining reveal the parasites but usually the organisms are disrupted by any but special fixing methods. Staining procedures are very inefficient, when compared to the examination of the fresh discharge. Serologic reactions have been demonstrated but are unnecessary and not practicable in the light of our present knowledge.

There has been a considerable revision of therapeutic objectives during the past few years. The scant discharge of the healthy vagina usually has a hydrogen ion concentration of 4.0 to 4.5. The bacterial flora is predominantly of the acidophilus organisms known as Döderlein bacilli, which are generally considered to produce most if not all of the acid in the vagina by attacking the carbohydrate material contributed by the glycogen-filled epithelial cells, which in turn owe their many layers and glycogen content to the activity of the estrogenic hormone. Trichomonads are rarely found in such a secretion, although they can survive if implanted in certain cases. In trichomonas vaginitis the acidity is decreased (hydrogen ion concentration from 5.0 to 5.5), the bacterial flora is altered and the mucous membrane cell layers are decreased in number and glycogen content due to internal causes or the action of the invading organisms.

The treatment now generally recommended is directed not only toward eradicating the protozoa but also toward restoring normal vaginal conditions. Hence a combination consisting of weak acid to lower the hydrogen ion concentration temporarily, carbohydrates to encourage the growth of the vaginal bacilli, and some antiprotozoan agent is utilized. This discussion will be limited to a few preparations now in general use, including the types of treatment employed by our own staff.

Most methods of treatment seem to cure about 80 to 90 per cent of the cases, and by alternating therapy many recurrences and failures are eliminated. It is easier to relieve symptoms than to establish a permanent cure. While the ideal is to eradicate the protozoa and to restore the vaginal flora to a predominance of Döderlein bacilli with

a corresponding increase in acidity, the latter may not always be accomplished. From the patient's standpoint this lack of bacteriologic "cure" may be of little consequence since women with mixed vaginal floras still may be without complaints or objective changes.

Office treatment may be instituted by thoroughly cleansing the vagina with tincture of green soap diluted to a proportion (usually 50 per cent or less) which is not too irritating. The vagina is then dried with cotton balls, the cervix is painted with some antiseptic such as 1:1000 metaphen and the urethra is treated with a similar solution. Finally some preparation such as aldarson, devegan, stovarsol or silver picrate is insufflated into the vagina.

Ambulatory or interval treatment may consist of daily douches of vinegar (two tablespoons to a quart of water), lactic acid (one teaspoon to a quart of water) or green soap in water, and the insertion of devegan tablets (containing an arsenical, sugars and boric acid) or Floraquin tablets (containing diiodo-hydroxyquinolin, sugars and boric acid) three times a day. Suppositories of picric acid or carbarsone are also recommended. Associated cervicitis and other lower tract abnormalities are usually treated without regard for the trichomonas vaginitis.

The preparations listed here are merely representative of those advocated for general use. If circumstances permit, office treatments carried out three times a week are preferable. They should be continued through the menstrual period and for some time afterward to combat exacerbations or recurrences and should be repeated following each period for a few months. Persistent cases and recurrences may represent reinfections from the patient's cervix or urethra or from the urinary tract of the sexual partner. Changing the type of treatment may produce a cure in cases which persist in spite of no obvious source of reinfection. Persistent irritation in the absence of detectable trichomonads may mean that some other etiologic agent is responsible or that treatment has been carried to the point that it is actually causing the symptoms.

In conclusion, it may be well to emphasize briefly that trichomonas vaginitis is a local inflammation of the vaginal mucosa of common occurrence, and of considerable variation in severity. There is considerable doubt that the parasites invade the upper genital tract; reports of trichomonas salpingitis, peritonitis and septicemia require further substantiation. The claim that the protozoa are a cause of puerperal fever is still without a sound basis. Trichomonas vaginitis in itself

is not a hazard to the general health of the patient. The condition is only serious in three situations: when the inflammation is so severe that the patient is incapacitated; when the vaginitis is diagnosed as gonorrhea on the basis solely of the clinical history; and when a patient is subjected to unnecessary radical operative procedures because of an annoying and persistent discharge.

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THE FINLEY HOSPITAL CLINICO- PATHOLOGIC CONFERENCES

OCULOGLANDULAR TULAREMIA

H. E. THOMPSON, M.D., Dubuque, Iowa, and
JAMES D. GLYNN, M.D., Lancaster, Wisc.

Tularemia is known as a truly American disease. American investigators not only isolated the causative organism and determined its modes of transmission from animal to animal and from animal to man, but they have described the clinical forms of the disease, its bacteriology and pathology. The case of oculoglandular tularemia to be presented is of interest because it is similar to the first proved human case of the disease in the history of medicine.

CASE REPORT

Chief Complaint: The patient, a white male, forty-nine years of age, was admitted to The Finley Hospital November 6, 1939, because of "ulcers of the right eye."

Family History: Irrelevant.

Past History: He had enjoyed good health except for mastoiditis requiring operation in 1931. In 1918 he was vaccinated against the typhoid group of bacteria while in the army.

Present Illness: The patient dressed some wild rabbits eight days before admission. Six days after that he was husking corn, but got nothing in his eye as far as he knew. The next day there was some discharge from each eye, more so from the right which was painful. He had a chill in the afternoon, and had had several on the day of admission.

Physical Examination: Except for the local condition the examination was essentially negative. There was slight discharge from the right eye.

There was marked edema of the lids especially the lower one and there was also some edema of the ocular conjunctiva. The vision was normal and the cornea was clear. The pupillary reflexes were normal. The preauricular and the right submaxillary and cervical glands were enlarged and tender to touch. On further examination of the right lower lid, there was a small indurated area about 2.5 millimeters in diameter over which there was superficial necrosis of the conjunctiva. The patient's temperature was 102 degrees, the pulse was 110 and the respirations were 20 per minute. A white blood count was 7,000 with 72 per cent neutrophiles.

Provisional Diagnosis: Oculoglandular tularemia.

Course in Hospital: Hot compresses were constantly applied to the eye and right side of the face. Sulfanilamide given in 20 grain doses four times a day for two days controlled the chills and made the patient feel much better. White blood counts on several occasions varied between 9,000 and 11,000. Smears and cultures of the eye showed no organisms which could be identified as *Bacillus tularensis*, but no other organisms could be demonstrated. Agglutination tests on the fifth and seventh days of the disease were negative. The patient's temperature ran irregularly and varied between 100 and 103 degrees. The lesions in the eye became more extensive and several minute abscesses appeared on the conjunctiva of the lower lid. The cornea remained clear. The glands remained as large as ever and were still tender when the patient insisted upon returning home on the fifth day.

Final Clinical Diagnosis: Because of the typical appearance of the eye, the diagnosis was oculoglandular tularemia, in spite of the negative laboratory reports.

Subsequent Course: On the ninth day after admission (the seventeenth day after exposure) the agglutination test for *Bacillus tularensis* was positive 1 to 40 and partially positive 1 to 160. Nine days later it was positive 1 to 160. The preauricular and cervical glands suppurated and required drainage. The eye condition gradually subsided, but at the end of a month miliary abscesses could be made out beneath the conjunctiva. At the present time (nine weeks after onset) the patient is doing light work. The eye has almost returned to normal and the swelling of the glands has completely subsided.

DISCUSSION

History: In 1911 McCoy and Chapin,¹ while investigating a plague-like disease in ground squirrels, isolated an organism which they named *Ba-*

cillus tularensis, after the county of Tulare, California, in which the disease was first observed. They also discovered that other animals, especially rodents, were highly susceptible to the disease and they suspected that the organism might infect man, although up to that time no human case had been recognized. However, in 1907, Martin,² an ophthalmologist of Phoenix, Arizona, had described three cases of conjunctivitis in patients with what he termed "rabbit septicemia." Eighteen years later, one of these cases was proved by agglutination tests to be tularemia. During their studies, Chapin and another laboratory worker developed fevers of unknown cause, and following this were able to demonstrate agglutinins of the organism in their bloods. Late in 1913 a patient with an unusual type of conjunctivitis was studied by Vail,³ of Cincinnati, and the organism was finally isolated in pure culture and identified as *Bacillus tularensis* by Wherry and Lamb,⁴ bacteriologists at the University of Cincinnati. This was the first case of human tularemia diagnosed and proved by laboratory tests. Incidentally during their studies, Wherry and Lamb inoculated the healthy eye of a guinea pig with a suspension of the organism and reproduced the conjunctivitis. This indicates that the normal conjunctiva may be infected without being traumatized. Wherry⁵ also called attention to its infectivity to man. Francis,⁶ in 1919 and 1920, recognized the identity of "deer fly fever" and "plague-like disease of rodents" and named the disease tularemia because of the presence of *Bacillus tularensis* in the blood. He later showed⁷ that Ohara's disease of rabbits in Japan was also tularemia. The new disease attracted little attention from the general medical profession until Francis^{8, 9 and 10} published the results of his studies during 1919 and 1922. Since that time the disease has been recognized in almost every state in the Union, in Canada, Japan, Finland, Sweden, Russia, North Africa and Australia. Thus the disease is almost worldwide in its distribution.

Modes of Transmission: Tularemia is primarily an infectious disease of wild rodents in whom it produces a fatal septicemia. The disease affects man secondarily, as a result of direct contact with the tissues or body fluids of an infected animal; by the bite of an infected animal; by eating the insufficiently cooked meat of infected rabbits; and possibly by inhalation (droplet infection) resulting in the pulmonary type of the disease. Indirect transmission from animal to man may occur by blood-sucking insects, especially the deer fly, ticks, lice, fleas, and possibly others such as the bedbug. Some of these insects transmit the organism to their offspring and thus are a constant

source of new infections. Indirect transmission may result from the bite of the infected insect or from crushing it against the skin. There is no record of the disease being spread from man to man. In Iowa the most important mode of transmission is through the handling of infected rabbits. Usually there is some trauma at the site of infection but this is not essential; it has been shown that the organism may penetrate the intact skin, oral mucosa or conjunctiva.

Susceptibility: Animals vary in their susceptibility to the disease. Highly susceptible are man, monkey, ground squirrel, rabbit, guinea-pig, mouse, woodchuck, opossum, young coyote, pocket gopher, porcupine, and chipmunk. Less susceptible are rats, cats, sheep, goats and pheasants, while horses, cattle, hogs, dogs, chickens, pigeons and foxes are ordinarily considered non-susceptible.

Incidence: Francis, from an analysis of 679 cases, reports four clinical types:

1. Ulceroglandular Type. The primary lesion is a papule of the skin, later an ulcer and is accompanied by enlargement of the regional lymph glands.

2. Oculoglandular Type. The primary lesion is a conjunctivitis and is accompanied by enlargement of the regional lymph glands.

3. Glandular Type. There is no primary lesion at the site of infection, but there is enlargement of the regional lymph glands.

4. Typhoid Type. There is no primary lesion nor is there glandular enlargement.

Whereas up to 1924 only fifteen human cases of tularemia had been reported, in 1928 Francis was able to collect 679 cases. In 1933, the figure had risen to 2,720. In 1936, Pessin¹¹ stated that 5,411 cases had been reported in the United States. It is evident that the disease is more generally recognized and that it is gradually increasing in all parts of the country. In his analysis of 679 cases in 1928, Francis found 32 instances of the oculoglandular type; Oosting¹² in 1939 collected 68 cases. Undoubtedly some cases have not been recognized and some have not been reported. Probably about two per cent of all cases are of the oculoglandular type.

Clinical Description: Vail¹³ has described the clinical manifestations of the oculoglandular form of the disease as follows: "After a prodromal period, anywhere from twenty-four hours to ten days (the average being three and one-half days), the eyelids begin to swell and itch, and at the same time the patient has severe headache, chills and fever and vomits. The onset is sudden; almost simultaneous with the swelling and edema of the lids, the glands of the head and neck on the af-

fect side, namely, the preauricular, parotid, submaxillary and cervical, become enormously swollen and tender. If the patient is seen shortly after the acute onset, the ophthalmologist will find scattered throughout the conjunctiva of the everted lid, small yellow discrete ulcers, deeply situated in the chemotic conjunctiva, which is a vivid scarlet. Dr. Vail, Sr., picturesquely said, 'They look like yellow polka dots in a piece of turkey red calico.' As a general rule, the cornea is not involved and the bulbar conjunctiva is not invaded. In two cases, however, single ulcers have been described in the bulbar conjunctiva, and in one case nodules were found. There is a scanty mucowatery discharge, generally straw-colored, which is sufficient to glue the lashes together. The patient is obviously ill and complains of pain in the eye. As the course of the disease progresses, the ulcers tend to become nodular and covered by a thin membrane. This may be found at any time after the seventeenth day of the disease. The active conjunctivitis continues for about five weeks, when the swelling gradually recedes and the nodules disappear without leaving a scar."

Diagnosis: The clinical sequence of events usually makes the diagnosis clear if the condition is kept in mind. It is confirmed by the agglutination test which is weakly positive after ten days and strongly so during the third week of the disease. Smears and cultures of the eye are negative but scrapings of the conjunctiva if injected into a guinea-pig cause the death of the animal within five to seven days. Characteristic lesions are found in the spleen and liver from which cultures will grow on egg yolk mediums.

Prognosis: The majority of the patients recover, the mortality rate being about five per cent. Vail states that there were three deaths in the 34 cases of the oculoglandular type of the disease reported up to 1929, a mortality of 8.8 per cent. Usually the eye slowly returns to normal after about six weeks. Vision is normal except in the rare cases where the cornea may be involved. The glands may remain enlarged for several months but gradually return to normal. In some cases convalescence is slow and the patient is somewhat incapacitated for months. Rarely there are recurrent attacks of fever, sweats with sudden attacks of weakness and recurrent glandular enlargement.

Treatment: The best treatment of all types of tularemia is prevention. The use of rubber gloves when handling wild game, especially rabbits, is mandatory. Even with gloves one must avoid touching the eye while dressing rabbits, whether they appear diseased or not. Immunization by

vaccines in those especially exposed to infections should prevent some cases. The value of therapeutic serum is still problematical, although theoretically its use is logical. As regards the treatment of the oculoglandular form of the disease, local hot applications of magnesium sulphate or of physiologic salt solution and the use of mild antiseptics, such as boric acid solution or saline solution, add greatly to the comfort of the patient. If the glands suppurate they should be incised and drained. General supportive measures, such as those used in other febrile conditions, should be carried out. In our case the use of sulfanilamide apparently controlled the chills and made the patient feel better although there was no demonstrable effect upon the course of the lesion.

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HOBBY EXHIBIT

As in the past two years, there will be an exhibit of Doctors' Hobbies at the 1940 Annual Session.

Space will be provided for everyone who wishes to enter exhibits. Remember the dates, May 1, 2 and 3, 1940, at Hotel Fort Des Moines, Des Moines, Iowa.

Reserve space at once by writing Dr. L. K. Meredith, chairman, 505 Bankers Trust Bldg, Des Moines, Iowa.

STATE DEPARTMENT OF HEALTH

Nathan L. Loomis

REVIEW OF COMMUNICABLE DISEASES IN IOWA, 1939

The accompanying diagrams show graphically the reported prevalence of various communicable diseases as notified to the State Department of Health during the months of 1939. The charts, with the exception of those for pneumonia and tularemia, compare the month by month reported incidence of each disease in 1939 (solid line) with a monthly average based on reports covering the nine-year period from 1930 through 1938 (dotted line).

DIPHTHERIA

In 1939, reported cases totaled 305. With the exception of the month of April, reported prevalence during the past year was definitely below the nine-year average or expected number (see Figure 1). Reports for 1939 represent a reduction of 32 per cent over the nine-year period from 1930 through 1938.

DIPHTHERIA IN IOWA—1939

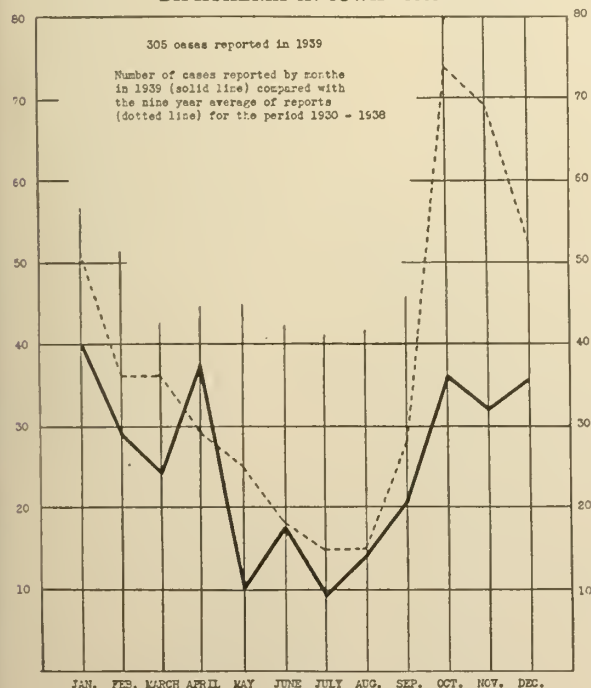


Fig. 1

MEASLES

Throughout the past year, measles was unduly prevalent in many counties of the state. Reported cases totaled 5,064. Unusual occurrence of the disease in 1938 in contrast with the expected number of reports (nine-year average), is apparent in Figure 2.

MEASLES IN IOWA Reported Prevalence—By Months—1939

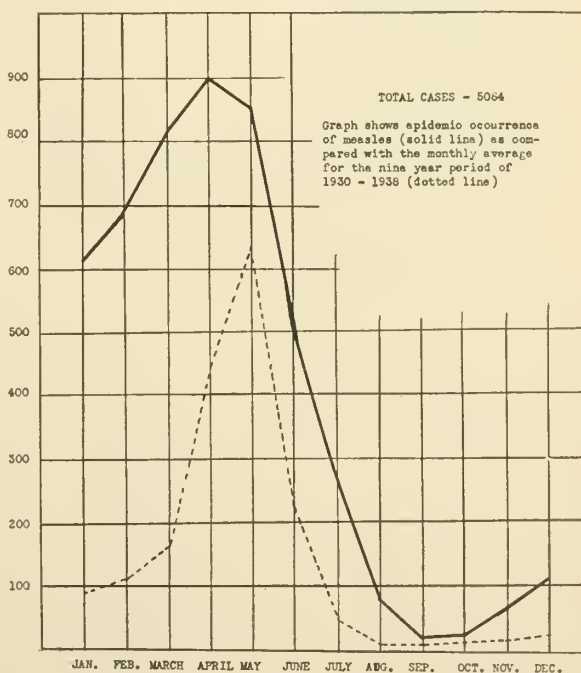


Fig. 2

PNEUMOCOCCUS PNEUMONIA

Reports of cases of pneumonia caused by the pneumococcus numbered 1,334 in 1939. Seasonal incidence of the disease is indicated in the accompanying bar diagram, Figure 3. Reporting was more complete in 1939 than in any previous year of record. The majority of reports during the past year came from pneumonia typing stations which cooperated with the State Department of Health in the notification of cases. Accurate and complete reporting of pneumococcus pneumonia

is dependent in a very special way upon laboratory findings of sputum or blood culture, obtained from the pneumonia patient.

PNEUMOCOCCIC PNEUMONIA IN IOWA—1939

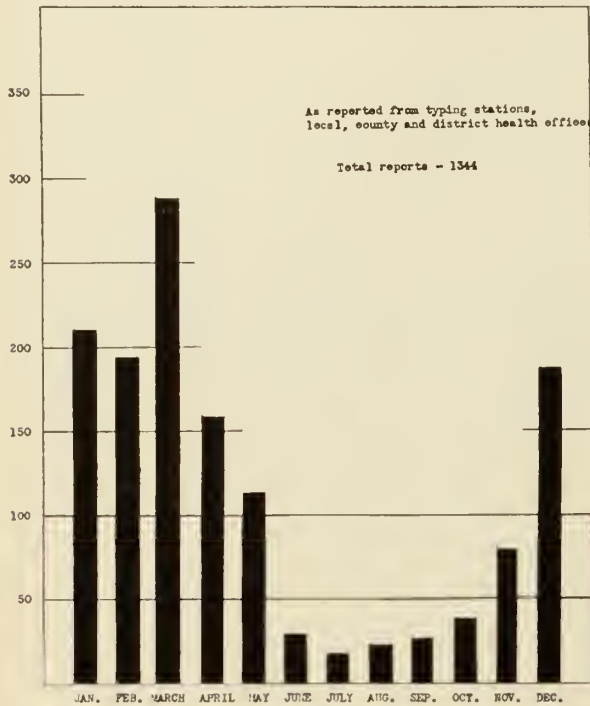


Fig. 3

POLIOMYELITIS IN IOWA—1939 (Infantile Paralysis)

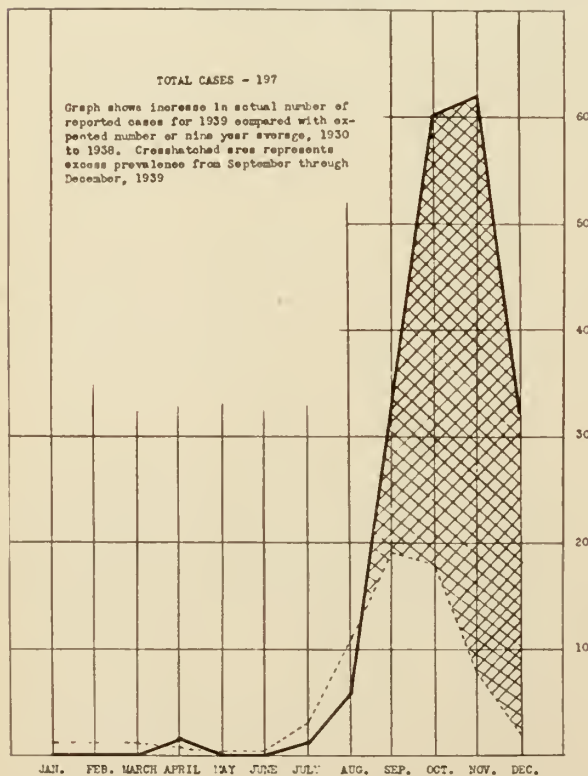


Fig. 4

POLIOMYELITIS

Unusual occurrence of this disease marked the year 1939. The shaded area in Figure 4 represents excess prevalence of poliomyelitis during the period from September through December 1939, as compared with the nine-year average. Total reports for the past year numbered 197.

SCARLET FEVER

Figure 5 presents information regarding the incidence of scarlet fever as reported by months in 1939; reports for the year totaled 4,009 cases. More cases than the expected number were reported for all months except July, August and September.

SCARLET FEVER IN IOWA—1939

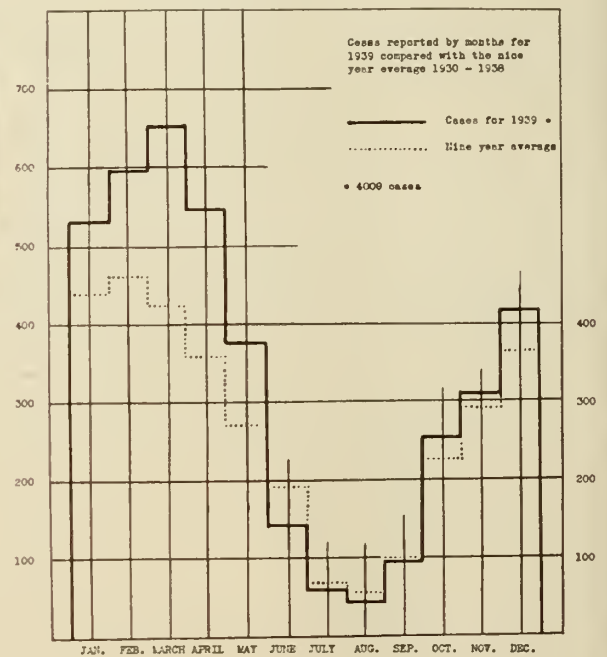


Fig. 5

SMALLPOX

The accompanying bar diagram (Figure 6) indicates the number of cases of smallpox reported for each month of 1939 (black bars), compared with the expected number represented by bars in crosshatch. In 1939 there were reported in Iowa, 1,057 cases of smallpox. More than the usual number of cases occurred in January, February, April, May, July, August, and September; less than the average number of cases were notified in March, June, October, November and December.

SMALLPOX IN IOWA DURING 1939

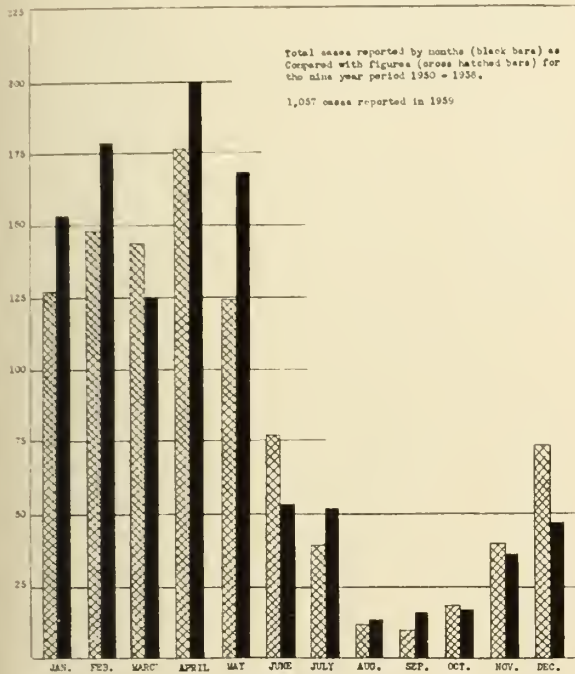


Fig. 6

RABBIT FEVER OR TULAREMIA IN IOWA
Total Reports By Years for the Six Year Period 1934-1939

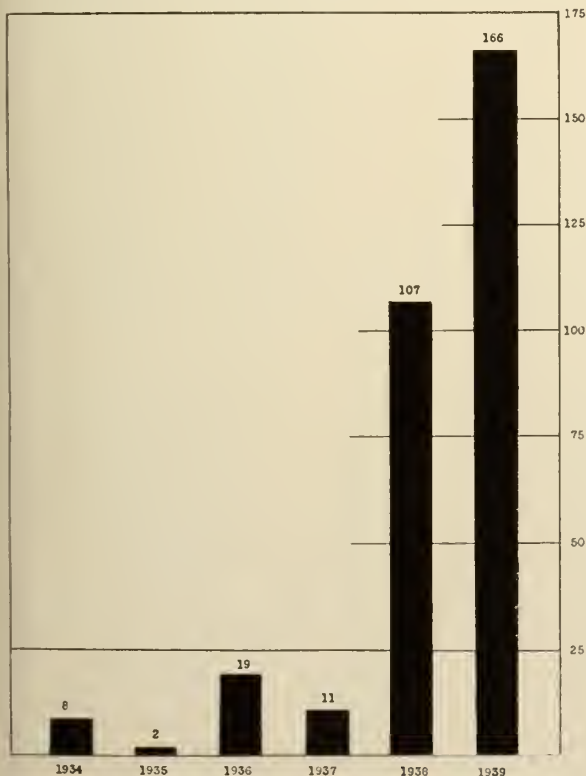


Fig. 7

TULAREMIA

Reports of tularemia during the six-year period from 1934 through 1939 are presented in the accompanying bar graph, Figure 7. It will be noted that whereas comparatively few cases occurred during the years preceding 1937, a remarkable increase in prevalence was experienced in 1938 (with 107 reported cases) and in 1939 (166 cases).

TYPHOID FEVER

As indicated in the accompanying line graph, Figure 8, reported cases of typhoid fever exceeded the expected number in May, June, July and August of last year. The peak in August marks the occurrence of a food-borne epidemic in Davis County. The dotted line, in addition to showing the expected number of reported cases (based on the experience of the nine-year period), represents the seasonal prevalence characteristic of typhoid fever.

TYPHOID FEVER IN IOWA—1939

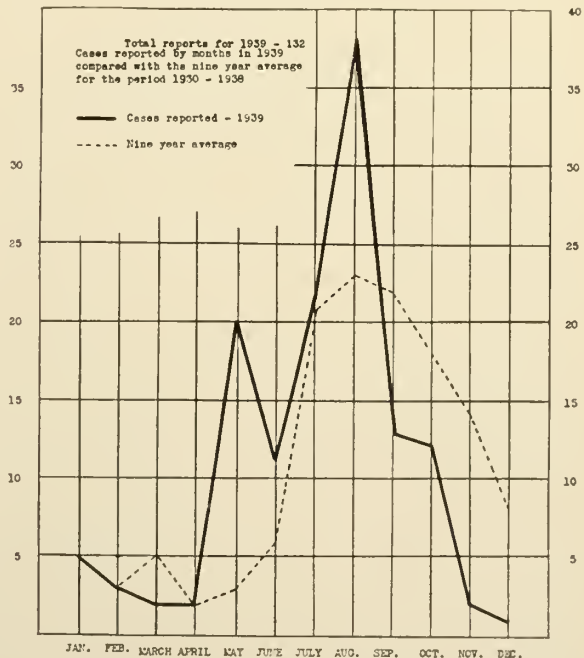


Fig. 8

WHOOPIING COUGH

The Division of Preventable Diseases of the State Department of Health received reports of 951 cases of whooping cough during the past year. Figure 9 shows the distribution of reported cases by months during 1939 compared with the average for the previous nine-year period.

WHOOPIING COUGH IN IOWA

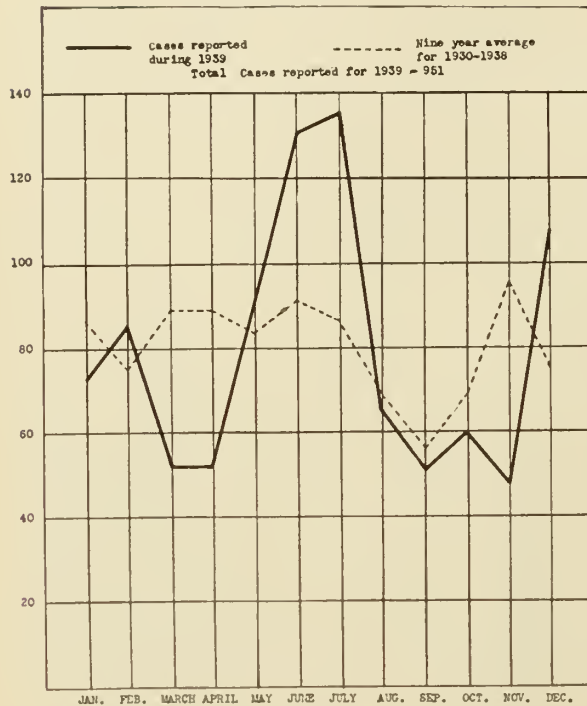


Fig. 9

NEW FILMS AVAILABLE

The new film on pneumonia, prepared under the direction of Norman Plummer, M.D., of New York, is available for showing at medical meetings. County medical societies desiring to use this film during the coming weeks are requested to communicate with the State Department of Health or with the Speakers Bureau of the Iowa State Medical Society.

A thirty minute, sixteen millimeter, silent film on the premature infant is available for loan to county medical societies. It was produced by Mead Johnson and Company in collaboration with Julius Hess, M.D. Those groups wishing to show

the film are requested to address the Iowa State Department of Health, Des Moines, Iowa.

TYPING FOR PNEUMONIA

Reports from pneumonia typing stations and from other sources indicate that many pneumonia patients in Iowa receive treatment without dependence upon the laboratory and without reference to the typing of sputum specimens. This is unfortunate from two standpoints, that of medical science and that of the patient.

Is it not desirable to know whether pneumonia is caused by the pneumococcus, by a streptococcus or possibly by a hemolytic staphylococcus aureus? The last mentioned organism was recently reported by an attending physician and a typing station as causing a fulminating, fatal infection. If the inciting organism is a pneumococcus, is it not essential to know the type of pneumococcus? In this connection, some of the monthly reports received by the Iowa State Department of Health from laboratory workers in typing stations, mention inability to determine the type of pneumococcus, presumably because sulfapyridine had been administered before a sputum specimen was obtained from the patient.

From the patient's viewpoint, sputum testing continues to be a matter of importance. The researches of Felton and others show that approximately ten per cent of all people are susceptible and subject to pneumococcus pneumonia. Susceptible persons seem unable to produce antibodies and are dependent upon type specific immune serum. Since these patients are not likely to respond when sulfapyridine alone is used, the combined treatment with drug and serum may prove life saving.

It is believed that attending physicians, in the interest of accurate diagnosis, should make the greatest possible use of facilities offered by typing stations.

PREVALENCE OF DISEASE

	Dec. '39	Nov. '39	Dec. '38	Most Cases Reported From
Diphtheria	35	32	46	Plymouth, Black Hawk, Scott, Webster
Scarlet Fever	417	303	403	Polk, Scott, Lee, Woodbury, Louisa
Typhoid Fever	1	2	27	Cass
Smallpox	43	34	59	Muscatine, Polk, Wapello
Measles	214	73	531	Des Moines, Polk, Linn
Whooping Cough	107	48	75	Mitchell, Dubuque, Linn
Epidemic Meningitis	0	3	2	(For the State)
Chickenpox	463	299	308	Linn, Montgomery, Des Moines, Boone, Dubuque
Mumps	379	154	50	Mitchell, Des Moines, Page, Lee
Poliomyelitis	32	62	1	Monroe, Dallas, Jasper
Tuberculosis (Pulmonary)	31	36	41	Dubuque, Clayton, Madison, Polk, Pottawattamie
Undulant Fever	23	19	8	Scott, Cerro Gordo
Gonorrhea	122	116	150	(For the State)
Syphilis	277	189	246	(For the State)

The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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HAS DEMOCRATIC MEDICINE WON?

Several times in the past we have predicted in the JOURNAL that some type of national health legislation would be introduced in the present session of Congress as a major issue. There were many good reasons for supposing such would be the case. Witness for instance the survey of the United States Public Health Service, the recommendations of the Technical Committee, the Washington Conference, the anti-trust suit brought by the federal government against the American Medical Association, the Wagner Health Bill, and finally the avalanche of publicity by newspapers, magazines, radio and addresses, the evident purport of which was to undermine the confidence of the public in the present system of medicine. All these activities pointed to one objective—governmental participation in medical practice. While the Wagner Health Bill encountered criticism and the frank disapproval of the House of Delegates of the American Medical Association, nevertheless it was generally accepted as a foregone conclusion that the bill would be brought out again in amended form.

However, the whole picture has suddenly changed. President Roosevelt at his press conference on December 21 announced it was his belief that a national health program on the lines laid down in the Wagner Health Bill was too cumbersome and too expensive. He further pointed out that the grants-in-aid features of the Act, depending upon matching appropriations, might not serve to be helpful to the very areas most requiring assistance. Obviously this statement by the President effectively quashes any possibility of further consideration by Congress of national health legislation on any such scale as that outlined in the Wagner Bill.

As a substitute the President proposed that the federal government erect hospitals in demonstrably needy areas and that such hospitals be locally supported and administered. Subsequently he invited the committee appointed by the House of Delegates of the American Medical Association to confer with federal representatives relative to the plan. This committee, together with certain hospital representatives, prepared and left with the President the following memorandum:

"1. Hospitals to be built only where need for same can be shown. Advisory consultation in the determination of such need to be given by the state medical and hospital associations, the state health department and the county judges or officials of the counties in which such hospital services are proposed.

"2. Size of hospital to be commensurate with the needs of the community and the ability of the latter to support it.

"3. Means for the maintenance and upkeep of such hospitals rank in importance equal to that of construction.

"4. Since the important objective of the program is the service it can render, hospital construction and administration equipment, staff and personnel should meet the standards which the American Medical Association, the American College of Surgeons and the hospital associations regard as minimal for rendering such service in the various localities. Where needed, since highly specialized facilities and personnel cannot be made available in all places, affiliation with larger hospitals or hospital centers to be had to the end that highly specialized services for diagnosis and treatment, be made available to all.

"5. Maintenance of a standard of professional and hospital service that will keep it efficient and prove attractive to qualified men and women as a career.

"6. Utilization of existing facilities where possible; under no circumstances should the program be allowed to develop into competition with the voluntary hospitals but should rather foster cooperation between the two groups.

"7. Many small communities can be better served by the utilization of bed vacancies in available existing institutions than by the construction of new hospitals, transportation and per diem expense to be borne by state and/or county funds. Where state and/or county funds cannot be provided, expense to be met by, and to be dispensed by, local agencies."

That a revived spirit of cooperation between medicine as a private organization on the one hand, and the federal government on the other, may have come into being is suggested by the similarity of

the message sent to Congress by the President on his birthday, January 30, anent the hospital plan. He asked Congress to approve a seven and one-half to ten million dollar experimental program for federal construction of approximately fifty hospitals in areas which needed such facilities but were unable to pay for them. The appropriation would be made to the public health service. Planning and construction of the hospitals would be done by the federal works agency, and title would be retained by the government, but continuing operation would be a local financial responsibility. The selection of sites and the adoption of standards for organization and staffing would be responsibilities of the surgeon-general, assisted by an advisory council of outstanding medical and scientific authorities. According to press reports the President is quoted as stating in his message that "This is not an ambitious project. This principle should not be extended to communities which are financially able to build their own hospitals. It is an experiment in the sense that the nation will gain much experience by undertaking such a project. The proposed hospitals should be built only where they are most needed; they should not be constructed in communities where public or private institutions are already available to the people in need of service even if these institutions are not up to the highest standards."

Unquestionably the President's proposal will be accorded the full approval of the medical profession. It should; it represents a sane approach to the medical needs of the nation. In the meantime the democratic system of medicine as we have known it for a century and a half has gained a reprieve from the threatened dangers of political domination. It is to be hoped that private medicine will take advantage of this opportunity to meet the challenge of finding solutions to the admitted problems which have arisen in the depression years. All medicine has asked is to be left alone to solve its problems. It seems as if organized medicine has been given that chance, and we are confident it will not fail.

SPECIFIC SERUM THERAPY IN INFANTS AND CHILDREN

There has been a paucity of literature on the use of type specific antipneumococcus serum in infants and children, because the use of this type of treatment has not been generally accepted. The difficulty of administration and certain alleged hazards have retarded studies of specific therapy.

Over a period of ten years at the Harlem Hospital in New York, Dr. Jesse M. Bullowa has ad-

ministered type specific antipneumococcus serum to alternate patients under twelve years of age, to obtain statistical evidence in an adequate series of cases. Pneumococcus Type XIV was the organism most frequently found in infants and very young children with pneumonia (16.8 per cent of the cases), and Bullowa records the results of treatment of all cases of Type XIV pneumonia during the ten year period. In the group of 160 patients not treated with serum, twenty-three or 14.4 per cent died. The death rate for children with bronchopneumonia, however, was 23.1 per cent. Below the age of two years, the mortality rate was twice as high (16.6 per cent) as at three years and over (6.7 per cent). Both recovery and death are delayed in this type of pneumonia (22 per cent of the deaths and 42 per cent of the recoveries occurred before the ninth day), indicating that it is possible to treat even those patients seen late in the disease.

Type specific serum was administered intramuscularly in the buttock to 71 patients. The dosage varied from 50,000 to 150,000 units. The mortality rate with serum was 4.2 per cent, a reduction of 70 per cent. Below the age of two years the mortality rate was 5.6 per cent as compared to a rate of 2.9 per cent over two years of age. By the twelfth day 85 per cent of the treated group had recovered, whereas only 70 per cent of those not treated with serum had recovered.

The majority of the patients were treated late, five days or more after the onset of the disease, but in spite of the fact that therapy was instituted late in the disease there was a significant reduction in the mortality rate in the treated group. The mortality rate of those who had no serum was 17.9 per cent; that of patients who were treated late with serum was 4.9 per cent. During the period from 1934 to 1938 there were no deaths among 54 children treated with serum. However, in the untreated group of 82 cases the mortality rate was 12.2 per cent. During this period of four years there was an ample supply of more potent serum. Complications occurred more frequently in the untreated group than in the group treated with serum. Empyema occurred in seven per cent of the 160 untreated cases, whereas only 1.4 per cent of the 71 treated cases developed this complication. Two of the untreated group developed meningitis and died, but there were no cases of meningitis in the treated group.

Such significant statistics, indicating the benefit of type specific serum in pneumonia in children, and emanating from such an authority as Dr. Bullowa, cannot fail to influence the practicing physician in his therapy of this disease. Typing

of the sputum should be the first procedure in treatment, once the diagnosis has been established. Sputum may be obtained by gagging the patient with a tongue blade or by a pharyngeal swab. It must be emphatically pointed out that typing is impossible after the administration of sulfapyridine, and sputum should be sent to the laboratory before chemotherapy is instituted.

The tendency to rely entirely on sulfapyridine in the therapy of pneumonia does not comply with the modern concept of the therapy of this disease. The combined use of specific antipneumococcus serum and sulfapyridine provides a formidable agent to reduce the mortality rate, to shorten the course of the disease, and to prevent the complications of "the captain of the men of death."

NEW STANDARDS FOR SURGICAL "CATGUT"

Attention is directed to the eleventh revision of the United States Pharmacopoeia, which contains recently established standards for the manufacture of surgical catgut. These provisions become official on July 1, 1940, and after that date any suture marketed and labelled as surgical gut, catgut suture, or surgical catgut, must meet the U.S.P. requirements, according to the Federal Food, Drug and Cosmetic Act of 1938.

Any manufacturer distributing catgut for surgical use which differs from the pharmacopoeial requirements must so label his product, indicating that it is not of U.S.P. quality. Furthermore the label must carry the respects in which the article differs from the pharmacopoeial product. The text presents a rigid laboratory technic for determining the sterility of catgut sutures and requires, in addition, that a lot number be placed on all packages to serve in identifying the method and time of sterilization. Specifications are also enumerated for the length and diameter and tensile strength of surgical catgut. The problem of absorption is discussed in detail, although the present U.S.P. text does not contain an absorption test. The obvious reason for this omission is that no one, as yet, has devised an absorption test which is acceptable generally as a standard technic. Any test recognized by the Pharmacopoeia should yield almost identical results when tested by the manufacturer, the surgeon, and the federal enforcement officials.

The establishment and publication of these standards have been made possible through the appointment by the Pharmacopoeia, of an advisory board, composed of surgeons and bacteriologists. Valuable cooperation was received from officials of the Public Health Service, the Food and Drug Administration, the Surgeons-General of the

Army and Navy, representatives of the American College of Surgeons, the American Hospital Association, the American Medical Association, and from commercial manufacturers of surgical products. Surgeons throughout the country will welcome this standardization which constitutes a further attempt at perfecting medical science. The assurance of proper sterilization and a knowledge of the approximate absorption time are two distinct advantages which will prove mutually beneficial to the surgeon and his patient.

INCOME TAX RETURNS

March and its promise of less wintry weather brings with it also its annual "bugaboo"—the necessity for filing income tax returns. Income tax blanks have been mailed both by the Federal Collector of Internal Revenue and the State Board of Assessment and Review to those persons who paid income taxes for 1938. However, failure to receive a blank does not relieve a person from the responsibility of filing a return if his income is large enough to be covered by either law. The only changes which have been made in the laws relate to salaries received either from the federal or state government. Formerly these have been exempt from taxation, but new regulations make income received from the federal government taxable under the Iowa law, and income received from state funds taxable under the federal law. This change will affect only those physicians who derive some part of their income from governmental funds. For the benefit of physicians who are filing returns for the first time, as well as those who wish to refresh their memory, a brief statement of the rules and regulations, both federal and state, is given at this time. The *Journal of the American Medical Association*, issue of January 20, page 254, presents a more detailed explanation of the federal income tax law.

FEDERAL

Federal income tax returns are due on or before March 15. Those liable for making returns are single persons with a net income of \$1,000 or over, married couples with a net income of \$2,500 or over, and all individuals with a gross income of \$5,000 or over in 1939. The tax is paid on gross income less allowable deductions, exemptions and earned income credit. A physician's gross income is the total amount of money received by him during the year for professional services, regardless of when the services were rendered, plus money he has received as profits, from investments and speculation, or as compensation and profits from other sources.

From this gross income the physician may subtract allowable deductions. Under this are included all current expenses necessary in carrying on his practice, such as office rent, office maintenance, supplies (dressings, drugs, chemicals, professional journals and books, furniture or instruments which have a useful life of less than one year), dues to medical societies, travel expense incurred in attending patients or medical meetings (but not for attending postgraduate courses), automobile expense incurred in the practice of his profession, social security taxes paid on employees, insurance premiums (malpractice insurance and other insurance necessary in the practice of his profession), and the usual deductions such as general property taxes, state income tax paid in 1939, Iowa sales tax (provided an itemized record of same is kept), contributions to church and organized charity, and interest on indebtedness. The three cent state tax on gasoline is also deductible for gasoline used in pleasure cars, as is the license fee. These deductions are explained on the forms. Depreciation may be charged on equipment used over a period of years, but must not be more each year than is necessary to cover the actual depreciation.

All of these allowable deductions are subtracted from the gross income figure, giving the net income. Of this figure, the physician is allowed a credit of ten per cent of the earned net income, provided the net income is not over \$14,000. If the net income is less than \$3,000, the physician may deduct ten per cent of the net income regardless of whether or not it is earned income. In addition he is allowed an exemption of \$1,000 if unmarried, \$2,500 if married and living with his wife, and \$400 for each dependent. This figure, plus the earned income credit, is deducted from the net income, and the tax figured on the balance. Rates for computing the tax are set forth on the forms, and are roughly four per cent on net incomes up to \$4,000. Above that figure, a surtax is imposed.

STATE

State income tax returns are due on or before March 31. Those responsible for making returns are single persons with a net income of \$1,000 or more, married couples with a net income of \$1,500 or more, and all individuals with a gross income of \$3,000 or more in 1939. Tax is paid on gross income less allowable deductions. Gross income includes the money received by the physician for services rendered, plus such money as he may receive from investments and speculation, and other sources. If part of the income is for serv-

ices rendered prior to 1934, such money should not be included, because income for years prior to 1934 is not taxable. Physicians may compute their tax upon the basis of actual money received during the year, or upon the basis of charges made for services during the year whether collected or not, depending upon the actual method used in keeping accounts.

Allowable deductions for physicians include professional expenses and the usual deductions authorized by law, such as general property taxes, federal income tax paid in 1939, sales tax, contributions to church and organized charity, interest on indebtedness, etc. These deductions are explained on the form. Under professional expenses may be included the cost of supplies used in practice, automobile expense incurred in making professional calls, dues to professional societies, subscriptions to professional journals, office rent, depreciation and maintenance. Insurance premiums (malpractice and other professional insurance) are deductible, as are social security taxes paid on employees. The three cent state tax on gasoline used for pleasure, and the automobile license fee of pleasure cars, may be deducted. Travel expense incurred in attending professional meetings is deductible but that for attending postgraduate courses is not.

These allowable deductions, when subtracted from the gross income, give the net income figure. The tax rate is given on the forms and is, briefly, one per cent on the first \$1,000, two per cent on the second \$1,000, etc. On incomes of \$4,000 or more, five per cent tax is paid. From the tax as figured, a deduction of \$10 may be made for a single person, \$20 for a married couple, and \$5 for each dependent.

It must be remembered that in computing both the federal and state tax, the burden of proof is on the taxpayer. He must keep accurate records to show he is entitled to the deductions claimed. In cases where his office is included in his residence, he is entitled to deduct only that portion of the rent which should be charged to the office. This is true also in regard to automobile expense where one car serves for business and pleasure; only that expense incurred in professional practice is deductible. Filing income tax returns need not be an overwhelming task. The blanks give an explanation of the procedure to be followed, if one will read them. The information requested regarding gross income and allowable deductions, while not identical in both forms, is so similar that both may be filled out at one time. Computation of the tax is not difficult after the net income figure is established.

The Pathology of Acute Appendicitis*

JAMES E. KAHLER, M.D., Des Moines

Pathologist, Iowa Methodist Hospital

Etiology: In 80 per cent of the cases, acute appendicitis develops on the basis of an obstruction, with infection playing a secondary rôle. The cause of the obstruction in two-thirds of these cases is a fecalith. In the remainder, the obstruction may be due to a foreign body, to the anatomic position of the appendix or to some residue of previous inflammation, such as a polyp, a luminal stricture or a kink. In a few instances, foreign bodies within the appendix, such as sharp spicules of bone, may perforate the mucosa of the organ and initiate an acute inflammation.

For the cases which do not belong in the above mentioned categories, there is no adequate explanation, at present, unless the older theories of etiology of appendicitis may each be applied in a small number of instances. These older theories (the hematogenous, the endemic, the neuro-angiospastic, the dietary and the traumatic), have, for the most part, been disproved. No specific organism has been implicated as the cause of appendicitis. The bacteria found to be present are those expected in a viscous-containing feces. Experiments have done much to substantiate the obstructive theory of etiology. Increased intraluminal pressure in a sterile organ can produce acute inflammatory and even gangrenous changes. Considerably increased intraluminal pressure can be built up in the appendix even in the absence of a definite organic obstruction. A completely obstructed appendix containing feces always results in gangrene.

Pathogenesis: When the lumen of the appendix becomes occluded, peristalsis is stimulated. The increased peristalsis in the presence of occlusion acts as a secretory stimulus and the accumulated fluid distends the lumen. There are several factors contributing to the increasing amount of fluid within the lumen: first, the normal secretory activity of the appendix, which may account for one to two cubic centimeters per day; second, the hypertonic nature of the fecal contents; third, the ball-valve nature of the obstruction; and fourth, the bacterial decomposition of protein resulting in both fluid and gas. Increasing distention produces vascular congestion, and an inflammatory reaction. Still greater distention leads to vascular thrombosis, infarction and hemorrhage,

to pressure necrosis of the mucosa, dilatation of the wall and bacterial penetration of the wall, eventuating in gangrene and perforation. Enemata may hasten the perforation of an acute appendicitis by overdistinging it and may rarely initiate an attack by the same mechanism. Cathartics, such as castor oil and croton oil, hasten rupture by acting as marked stimulation to both peristalsis and secretion, with the appendix thereby rapidly increasing its intraluminal pressure. Fortunately for the human race, many cases of acute appendicitis regress before going on to gangrene and perforation. Mechanisms which may explain this regression are expulsion of the obstructing agent, dissolving the fecalith in situ, or release of a kink or anomalous sphincter.

Pathology: The gross appearance of the appendix in acute appendicitis will vary with the stage in the process at which the organ has been removed, the type of obstruction initiating the lesion and the occurrence of previous inflammatory episodes in the same organ. Acute appendicitis cannot always be diagnosed by the external appearance of the organ, a fact which results in the occasional astonishment of a surgeon who has performed a gratuitous appendectomy in the course of some other procedure. On the other hand, the diagnosis of acute appendicitis should not be made merely because of an acute inflammatory change in the serosa, because a periappendicitis may result from a neighboring pelvic or generalized peritoneal inflammation, without there being a primary appendicitis in the true sense of the word.

Some of the more common gross appearances of acute appendicitis include:

1. The serosa may be markedly congested and partially covered with a yellowish fibrinopurulent exudate which extends onto the meso-appendix; the wall is thickened, turgid and somewhat friable, the mucosa contains minute areas of hemorrhage, and the lumen is filled with yellowish purulent exudate.

2. The serosal surface is greenish black to gray-red in color and covered with a frankly purulent fetid exudate; the wall is markedly thinned, the mucosa is necrotic and flattened, and the lumen is distended under greatly increased pressure by brownish amorphous material distal to an obstructive object.

*Editor's Note: This editorial has been prepared upon our request. Previous articles by Dr. Kahler appeared in the October, November and December, 1939, and January, 1940, issues.

SPEAKERS BUREAU ACTIVITIES

POSTGRADUATE COURSES

The Speakers Bureau, in cooperation with the Poweshiek County Medical Society, will conduct a postgraduate course in gastro-enterology during the month of March in Grinnell. The meetings will be held each week at the Hotel Monroe, and the two hour lecture periods will follow a six o'clock dinner. The schedule for the course is as follows:

- March 5 X-ray Diagnosis of Gastro-intestinal Lesions, Thomas A. Burcham, M.D., Des Moines.
- March 12 Diseases of the Stomach, John T. Strawn, M.D., Des Moines.
- March 19 Diseases of the Colon, Clement A. Sones, M.D., Des Moines.
- March 26 Pathology of Gastro-intestinal Lesions, James E. Kahler, M.D., Des Moines.

Enrollment for the course is open to all physicians in Poweshiek County and the surrounding counties, and the registration fee of \$5.00 will be payable to Dr. C. E. Harris of Grinnell, local chairman of the course, at the opening meeting. A question and answer period will follow each lecture.

Tuesday, January 9, marked the opening of another series of nine monthly postgraduate meetings for the members of the Marshall County Medical Society. Dr. P. C. Jeans of the faculty of the College of Medicine, State University of Iowa, addressed the society on the subjects of "Infant Feeding" and "New Treatments for Diseases in Children." Tuesday, February 6, Dr. Gershom J. Thompson of Rochester presented the second program and discussed "Diagnosis and Treatment of Renal Infections." Dr. Kellogg Speed of Chicago will be the guest of the society on Tuesday, March 5, at which time he will present a paper on "Unhappy Results in the Treatment of Fractures."

This is the third year the Speakers Bureau has cooperated with the Marshall County Medical Society in arranging its programs, and the final schedule for the coming months will be announced in the next issue of the JOURNAL.

The meetings are held on the first Tuesday of each month at the Hotel Tallcorn in Marshalltown. Dinner is served at six o'clock and the two hour lecture period follows. Dr. Grove W. Harris of Marshalltown is in charge of local arrangements.

The Calhoun County Medical Society will open a series of eight monthly postgraduate meetings on Tuesday, February 20, in Rockwell City. This course will be conducted in the form of a dry clinic, and speakers will demonstrate laboratory and clinical procedures on patients furnished by the members. The programs will be presented in the Rockwell City

High School with the dinner at 6:30 p. m., followed by the two hour lecture period. Dr. P. W. Van Metre of Rockwell City is local chairman. The following meetings have been arranged for the course by the Speakers Bureau:

- Feb. 20 Laboratory Procedures for the General Practitioner:
Examination of the urine; complete blood counts; smears of various descriptions; blood chemistry to include sugar, urea nitrogen, etc.; sedimentation rate.
A. C. Starry, M.D., Sioux City.
- Mar. 19 Pediatrics:
Physical examination of infant and child; use of physical agents in treatment; anemia; rickets; pyogenic infections; use of prophylactic serums and vaccines; tuberculin tests; subclinical tuberculosis in childhood; pyelitis.
L. F. Hill, M.D., Des Moines.
- Apr. 16 Gynecology:
Uterine bleeding; biopsy; dysmenorrhea; vaginal smears and differential diagnosis of vaginitis; treatment of cystitis; cauterization of cervix; Bartholinitis; pruritis vulvae; irradiation; hormones.
W. E. Baker, M.D., Des Moines.
- May 21 Anorectal Diseases:
Office methods of treatment and diagnosis; perianal abscesses; fissures; hemorrhoids and pruritis; injection treatments.
R. J. Jackman, M.D., Rochester.
- Aug. 20 Physical Diagnosis:
General physical examination; neurologic examination; examination of the eye grounds; obscure thyroid disease; discussion of organic disease as contrasted with inorganic disease.
H. W. Rathe, M.D., Waverly.
- Sept. 17 Injection Clinic:
Varicose veins; hernia; hemorrhoids.
J. M. Bruner, M.D., Des Moines.
- Oct. 15 Orthopedics:
Fractures; dislocations; sprains, bunions; ingrown toenails; plantar warts; bursitis; use of plaster of paris; backache.
F. L. Knowles, M.D., Fort Dodge.
- Nov. 19 Bete Noire of Medical Practice:
Sinus disease; asthma; asthenic and neurotic states; constipation; furunculosis; obesity; hypertensive states.
(Speaker to be announced.)

Dr. Thomas J. Dry and Dr. Edgar V. Allen of The Mayo Clinic, Rochester, Minnesota, presented the

first in a series of monthly postgraduate programs arranged by the Speakers Bureau for the Boone and Story County Medical Societies in 1940. Dr. Dry and Dr. Allen addressed the members in Boone, Thursday, January 25, on the subjects of "Coronary Heart Disease" and "Hypertension." Dr. Clifford J. Barborka of Chicago will discuss "Vitamin Deficiency—Symptoms and Treatment" before the members of these societies at their meeting Friday, February 23, in Ames. This program will be presented at the Sheldon-Munn Hotel and will be preceded by dinner at 6:30 p. m. A complete schedule of the remaining lectures for the course will be carried in an early issue of the JOURNAL.

ROUND TABLE DISCUSSIONS

The Clayton County Medical Society was host to a round table conference on "Prematurity From the Obstetric and Pediatric Standpoint" at its meeting Thursday, February 8, in Elkader. Dr. Addison W. Brown of Des Moines presented the obstetric discussion, and Dr. Arnold M. Smythe of Des Moines conducted the round table review from the pediatric standpoint. Case histories were introduced by the speakers to illustrate points in the discussion, and the local audience presented case histories of its own for review by the round table.

The Cass County Medical Society will entertain Dr. Brown and Dr. Smythe at its meeting Friday, March 15, in Atlantic, and the Dickinson, Emmet and Clay County Medical Societies will enjoy a similar program during the latter part of March.

The Speakers Bureau is especially anxious to schedule as many of these round table discussions as possible and urges all county societies to communicate with us if they desire the program. There is no charge in connection with the meetings.

PNEUMONIA FILM AVAILABLE

The new film on pneumonia, prepared under the direction of Norman Plummer, M.D., of New York, is available for showing at medical meetings. County medical societies desiring to use this film during the coming weeks are requested to communicate with the State Department of Health or with the Speakers Bureau of the Iowa State Medical Society.

RADIO SCHEDULE

WSUI—Tuesdays at 4:00 p. m.

WOI—Wednesdays at 3:45 p. m.

Feb. 13 Medical Relief in Polk County

Harold C. Black, M.D.

Feb. 20 Highlights in the History of Medicine

Jeannette Dean-Throckmorton, M.D.

Feb. 27 Mental Hygiene

James W. Layman, Ph.D.

Mar. 5 Middle Ear Infections

Sydney D. Maiden, M.D.

THE PATHOLOGY OF ACUTE APPENDICITIS

(Continued from page 81)

3. The serous surface may be very mildly congested, the wall somewhat thickened, the muscularis hyperplastic and the small lumen filled with yellow exudate.

Since an obstruction can occur in any part of the lumen, the acute inflammatory process may be restricted to a distal portion of the appendix while the portion proximal to the obstruction remains normal in appearance. Histologically, acute appendicitis is an acute suppurative process and no support can be found for a diagnosis of an acute catarrhal process.

The microscopic appearance depends upon several factors just as the gross aspect does, and it is unnecessary for the present purposes to describe more than the changes found in the first two common gross appearances mentioned above.

1. Non-obstructive appendicitis: The serosa is edematous, infiltrated by polymorphonuclears and shows marked vascular congestion. The muscular layers are distended and disrupted by an exudate of serum and leukocytes. The submucosal vessels are engorged, and the loose fibrous stroma of the submucosa infiltrated by an exudate of polymorphonuclears. The lymphoid apparatus is either hyperplastic or relatively unchanged. The mucosa is infiltrated by polymorphonuclears and the lumen filled with exudate and liquid feces.

2. Acute gangrenous appendicitis on an obstructive basis: The serosa and muscularis may be practically unrecognizable in a tightly packed mass of polymorphonuclears. The mucosa and submucosa are flattened, necrotic and nearly obliterated by pressure. The lumen is distended with a mass of purulent exudate mixed with amorphous debris.

The above are end stages. During the early acute stages of appendicitis, the inflammatory process may be limited to vascular congestion and diapedesis of cells into the submucosa, and later to changes in only the submucosa and serosa, with the mucosa and muscularis remaining seemingly inert.

Acute inflammatory changes are seen microscopically in appendices removed gratuitously with sufficient frequency to convince the pathologist, at least, that either the clinical index of suspicion in appendicitis is too low or that the initial symptoms of appendicitis in some cases are too indistinct to come to the surface in the presence of another more easily demonstrable lesion. In any case, the mortality rate of appendicitis is still too high to allow a physician to adopt a waiting attitude when appendicitis is suspected. The only excuse for pause is evidence of perforation.

WOMAN'S AUXILIARY NEWS

MRS. FRED MOORE, *Chairman of Press and Publicity Committee*
3407 Lincoln Place Drive, Des Moines

President—MRS. EDWARD A. HANSKE, Bellevue

President Elect—MRS. ELBERT T. WARREN, Stuart

Secretary—MRS. WALTER J. CONNELL, Dubuque

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

NATIONAL CONVENTION ANNOUNCEMENT

The Eighteenth Annual Convention of the Woman's Auxiliary to the American Medical Association will be held in New York, June 10 to 14, 1940, with headquarters at the Hotel Pennsylvania. In view of the fact that the Second New York World's Fair will tax hotel capacities, it is urged that reservations be made immediately through the Housing Bureau which has been established by the American Medical Association, with Dr. Peter Irving, Room 1036, 233 Broadway, New York, as chairman. Additional information and preliminary program announcements will be available for members at an early date.

THE STATE CONVENTION

The Eleventh Annual Session of the Woman's Auxiliary to the Iowa State Medical Society will be held in Des Moines, May 1 and 2, 1940, with headquarters at the Savery Hotel.

Mrs. Hanske, president of the state organization, is calling the officers and committee chairmen together on Wednesday, May 1, for a conference at noon. The board will lunch at the Savery Hotel. Entertainment will be provided for Wednesday evening.

The business meetings and sessions of the Auxiliary proper will be held Thursday, May 2, and arrangements have also been made for a luncheon Thursday noon at the Savery, at which time we will be honored by the presence of Mrs. Rollo K. Packard of Chicago, president of the Woman's Auxiliary to the American Medical Association. Dr. John I. Marker, neurologist of Davenport, will be a featured speaker of the afternoon program. The annual banquet for doctors and their wives will be at the Hotel Fort Des Moines, and this will be the closing session for the Auxiliary.

Your officers are anxious that this annual meeting be well attended, and wish to take this opportunity of urging members to make plans early. Capacity crowds will be filling the hotels and it would be wise to make reservations as soon as possible.

NEWS NOTES FROM COUNTY AUXILIARIES

The Press and Publicity Committee of the Woman's Auxiliary to the Iowa State Medical Society recently urged county presidents and secretaries to send in reports of meetings held in their various localities, and the response has been gratifying. Your committee feels very strongly that the value of our page in the Journal can be enhanced greatly if complete reports of all meetings are published. The Program Committee has rendered such a splendid service in outlining interesting programs for the component auxiliaries that we should have several reports each month of worthwhile gatherings of our members.

Mrs. Fred Moore, Chairman

Dallas-Guthrie Auxiliary

It is the custom of the Dallas-Guthrie Auxiliary to have a dinner-bridge for doctors and their wives every month except July and August. These foster good fellowship and allow all of us an opportunity to visit the other towns. They are very well attended; never less than forty, and usually around fifty. Our new president, Mrs. M. L. Brinker of Yale, has conceived an idea which will be used this year. She has appointed a friendship committee which will make an effort to contact doctors' wives in our two counties, and urge them to become members of the organization. It is customary to have programs at our regular business session. The counties are divided so that members in nearby towns may work together. At our last meeting, on Thursday, January 18, in Adel, Mrs. Elwyn Butterfield of Guthrie Center, read a highly entertaining and most scholarly paper on "Mental Hygiene"; Mrs. C. E. Mershon of Adel discussed Nora Waln's book, "Reaching for the Stars"; and Mrs. A. G. Felter of Van Meter reported some very interesting facts about Cuba, gleaned on her recent trip.

Mrs. K. M. Chapler, Secretary

Jackson County

The regular monthly meeting of the Jackson County Auxiliary was held Tuesday, January 30, at the

Library in Maquoketa. The following officers were elected during the business session: Mrs. E. V. Andrew of Maquoketa, president; Mrs. R. E. Dwyer of Preston, vice president; and Mrs. E. L. Lampe of Bellevue, secretary and treasurer. It was voted to send five dollars to the Essay Contest Fund. A feature of the program was Mrs. Andrew's review of "Doctor, Here's Your Hat".

Mrs. E. L. Lampe, Secretary

Madison County

Officers elected to serve the Auxiliary to the Madison County Medical Society for 1940 are: Mrs. Edward Embree of Winterset, president; Mrs. H. N. Boden of Truro, vice president; and Mrs. J. F. Veltman of Winterset, secretary and treasurer. The Auxiliary meets once a month, having dinner with the doctors, and then adjourning for separate business meetings and programs. At the January meeting it was decided to place *Hygeia* in the Truro and St. Charles schools. The program consisted of a paper given by Mrs. Veltman on "Mental Hygiene", with the history of the subject as the basis for the address.

Mrs. J. F. Veltman, Secretary

Polk County

Mrs. E. J. Harnagel, president of the Woman's Auxiliary to the Polk County Medical Society, has announced the following committee appointments: program, Mrs. W. W. Bond and Mrs. Julius S. Weingart; telephone and reservations, Mrs. Donald H. Kast and Mrs. Robert J. Porter; social, Mrs. Harry W. Dahl, Mrs. Charles Ryan and Mrs. A. E. Merkel; current events and *Hygeia*, Mrs. Tom B. Throckmorton; table decorations, Mrs. Harold N. Anderson and Mrs. John H. Matheson; historian, Mrs. F. E. V. Shore; bridge, Mrs. Clarence P. Cook and Mrs. E. R. Posner; press and publicity, Mrs. M. L. Turner; public relations, Mrs. Fred Moore; annual session entertainment, Mrs. Russell C. Doolittle and Mrs. A. E. Merkel, with Polk county women as co-chairmen; registration, Mrs. L. K. Meredith; transportation, Mrs. J. B. Synhorst; hospitality, Mrs. A. C. Page, Mrs. George S. Marquis and Mrs. Frank A. Ely. Delegates to the House of Delegates are Mrs. S. E. Lincoln and Mrs. Henry G. Decker. Officers of the Auxiliary assisting Mrs. Harnagel are Mrs. W. W. Bond, president-elect; Mrs. Julius S. Weingart, vice president; Mrs. H. G. Decker, secretary; and Mrs. C. J. Peisen, treasurer.

Pottawattamie County

The Woman's Auxiliary to the Pottawattamie County Medical Society held their regular monthly meeting in the form of a tea at the home of Mrs.

J. L. Stech in Council Bluffs, from three to five o'clock. During that time not only was tea served, but an interesting program was presented. Mrs. Mathew A. Tinley gave an historical talk on Canada, and Mrs. Karl R. Werndorff played several piano selections. Mrs. I. Sternhill, president, presided at the table which was beautifully decorated with yellow and white chrysanthemums. Mrs. Fred Beaumont, chairman of the committee, was assisted by Mesdames K. L. Thompson, J. M. Moskovitz, M. A. Tinley, C. D. Hankey, A. V. Hennessy and H. D. Kelly.

Mrs. G. Floersch, Secretary

Mrs. E. A. Hanske of Bellevue, president of the Woman's Auxiliary to the Iowa State Medical Society, was the guest of honor at a luncheon of the Pottawattamie Auxiliary held Tuesday, January 16, at the home of Mrs. M. C. Hennessy in Council Bluffs. Mrs. Hanske delivered an interesting and instructive talk on "The Functions of the Auxiliary" to a large and receptive audience. The members were further treated to several delightful musical numbers by one of the members, Mrs. Karl R. Werndorff. Hostesses were Mesdames E. B. Floersch, chairman, Robert S. Moth, S. D. Maiden, M. C. Hennessy, Robert E. Tinley, Jack V. Treynor, Emmett L. Hawkins, Joseph B. Thornell and A. A. Robertson.

Mrs. I. Sternhill, President

Woodbury Auxiliary

The Woodbury Woman's Auxiliary (Sioux Meddames), with the assistance of the members of the Woodbury County Medical Society, entertained the wives of the doctors attending the two-day meeting of the Sioux Valley Medical Association held in Sioux City, January 17 and 18. Guests were welcomed at a bridge afternoon held at 2:30 in the Corn Room of the Martin Hotel. We were happy to have with us as a two-day guest of our meetings, Mrs. E. A. Hanske of Bellevue, president of the State Auxiliary, who was a house guest of Mrs. J. C. Decker. She brought to us a message of the part we as doctors' wives play in our community and the thought that with unity we may succeed as honored auxiliaries. Tea was served at four o'clock from a beautifully decorated table. Members of the Auxiliary and visiting ladies attended the banquet with our husbands in the Ball Room of the Martin Hotel. A guest luncheon was given Thursday at the Warrior Hotel. Mrs. Wayland K. Hicks, one of our own members, sang several delightful selections.

In spite of the inclement weather we entertained about twenty-five out of town guests during the two-day session, and the success of our meetings was due to "unity" and cooperation of all our members who worked under the chairman, Mrs. A. C. Starry and Mrs. Roy E. Crowder.

Mrs. A. Q. Johnson, President

SOCIETY PROCEEDINGS

Audubon County

Recently elected officers of the Audubon County Medical Society include Dr. L. E. Jensen of Audubon, president; Dr. R. H. Payne of Exira, vice president; and Dr. F. D. Koehne of Audubon, secretary and treasurer.

Boone-Story County

Members of the Boone and Story County Medical Societies met at the Sheldon Munn Hotel in Ames, Thursday, January 25, and heard a program presented by two physicians from The Mayo Clinic, Rochester, Minnesota. Edgar Allen, M.D., spoke on Hypertension, and Thomas J. Dry, M.D., addressed the group on Coronary Heart Disease.

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held at the Fortner Hotel in Waverly, Monday, January 22. The scientific program consisted of moving pictures on the following subjects: The Anatomy of the Abdominal Wall, The Anatomy of the Abdominal Viscera, and The Story of Cholecystokinin.

P. K. Graening, M.D., Secretary

Buchanan County

The annual election of officers for the Buchanan County Medical Society was held Thursday, December 21, at the Hotel Gedney in Independence with the following results: Dr. R. A. Stewart of Independence, president; Dr. Frank Senska of Brandon, vice president; Dr. Nelson L. Hersey of Independence, secretary and treasurer; Dr. F. F. Agnew of Independence, delegate; and Dr. J. F. Loeck of Aurora, alternate delegate. A motion picture on Traumatic Surgery was shown as a feature of the program for the evening.

N. L. Hersey, M.D., Secretary

Cass County

Carl F. Jordan, M.D., of the State Department of Health, Des Moines, presented the scientific program for the Cass County Medical Society at its meeting held in Atlantic, Friday, January 19, with an illustrated lecture on the Serum Treatment of Pneumonia. Officers elected at the business session are: Dr. E. C. Petersen of Atlantic, president; Dr. Dan S. Egbert of Atlantic, secretary and treasurer; Dr. Roscoe M. Needles of Anita, delegate; and Dr. W. S. Greenleaf, alternate delegate.

Cerro Gordo County

The regular monthly meeting of the Cerro Gordo County Medical Society was held Tuesday, January 9, at the Hotel Hanford in Mason City, with the following program: X-ray, Harold W. Morgan, M.D., of Mason City; and Treatment of Head Injuries, Gordon R. Kamman, M.D., neurologist of St. Paul, Minnesota.

J. E. Houlahan, M.D., Secretary

Dallas-Guthrie Society

Members of the Dallas-Guthrie Medical Society met at the Rotary Hall in Adel, Thursday, January 18, for the following program: President's Address, Some Mistakes Made in Diagnosis, M. H. Brinker, M.D., of Yale; Tularemia, S. T. Foster, M.D., of Adel; and Review of Some New Medical Products, C. E. Mershon, M.D., of Adel.

S. J. Brown, M.D., Secretary

Emmet County

Officers elected to serve the Emmet County Medical Society during 1940 are Dr. A. I. Reed of Estherville, president; Dr. E. E. Lashbrook of Estherville, vice president; Dr. L. E. Collins of Estherville, secretary and treasurer; Dr. J. B. Knipe of Armstrong, delegate; and Dr. O. H. Miller of Estherville, alternate delegate. The meeting was held at the Gardston Hotel in Estherville, Friday, January 12.

O. H. Miller, M.D., Secretary

Johnson County

Herbert W. Rathe, M.D., of Waverly, was guest speaker for the Johnson County Medical Society at its meeting held in Iowa City, Wednesday, January 3. Dr. Rathe's subject was Rheumatic Heart Disease.

R. J. Prentiss, M.D., Secretary

Kossuth County

At a meeting of the Kossuth County Medical Society held in Algona, Friday, December 29, the following officers were named to head the organization during 1940: Dr. T. J. Egan of Bancroft, president; Dr. R. L. Corbin of Luverne, vice president; Dr. J. A. Mueller of Fenton, secretary and treasurer; Dr. R. M. Wallace of Algona, delegate; and Dr. J. N. Kenefick of Algona, alternate delegate.

J. A. Mueller, M.D., Secretary

Linn County

Paul Titus, M.D., of Pittsburgh, Pennsylvania, will address members and guests of the Linn County Medical Society, in Cedar Rapids, Monday, Feb-

ruary 12, on Recent Advances Made in Obstetrics. The society will entertain Dr. George Morris Pier-sol of Philadelphia, Pennsylvania, on Thursday, March 28.

T. F. Hersch, M.D., Chairman
Program Committee

Lucas County

Robert L. Fenton, M.D., of Centerville, spoke before members of the Lucas County Medical Society, Tuesday, January 16, presenting an illustrated lecture on Modern Treatment of Hemorrhoids and Associated Conditions.

Madison County

The Madison County Medical Society met at the Winterset Hospital in Winterset for a six-thirty dinner on Monday, January 15. Addison W. Brown, M.D., of Des Moines, gave a very interesting talk on Postpartum Hemorrhage. Auxiliary members were guests of the medical society.

Evelyn M. Olson, M.D., Secretary

Marshall County

Philip C. Jeans, M.D., head of the department of pediatrics, State University of Iowa, College of Medicine, Iowa City, was guest speaker for the Marshall County Medical Society at the monthly meeting held in Marshalltown at the Hotel Tallcorn. Dr. Jeans spoke on New Treatments of Diseases of Children, and Infant Feeding.

Monona County

Newly elected officers of the Monona County Medical Society include Dr. M. O. Stauch of Whiting, president; Dr. L. E. Almer of Moorhead, vice president; Dr. P. L. Wolpert of Onawa, secretary and treasurer; Dr. E. C. Junger of Soldier, delegate; and Dr. J. S. Deering of Onawa, alternate delegate.

P. L. Wolpert, M.D., Secretary

O'Brien County

Dr. T. D. Kas of Sutherland was named president of the O'Brien County Medical Society at the meeting held in Primghar, Thursday, January 4. Other officers elected are Dr. Stanley F. Moen of Hartley, vice president; Dr. W. S. Balkema of Sheldon, secretary and treasurer; and Dr. W. R. Brock of Sheldon, delegate.

Page County

The annual election of officers for the Page County Medical Society held Wednesday, January 10, at the Hotel Linderman in Clarinda, resulted as follows: Dr. W. H. Maloy of Shenandoah, president; Dr. F. H. Clark of Clarinda, secretary and treasurer; Dr. J. F. Aldrich of Shenandoah, delegate; and Dr. B. S. Barnes, also of Shenandoah, alternate delegate.

Polk County

Howard D. Gray, M.D., of Des Moines, assumed the presidency of the Polk County Medical Society at the annual meeting of that organization held at the Des Moines Club, Wednesday, January 17. Dr. Daniel J. Glomset was named president-elect; Dr. Floyd W. Rice was elected to the Board of Trustees; Dr. Emory L. Mauritz was chosen counselor-at-large; and Dr. N. Boyd Anderson was re-elected secretary and treasurer. The dinner meeting was attended by 166 members. In addition to committee reports, the program consisted of a paper by the retiring president, Dr. Russell C. Doolittle, and an address by the new president, Dr. Gray.

E. M. Kingery, Executive Secretary

Sac County

The Sac County Medical and Sac County Dental Societies met in joint session at Odebolt, Wednesday, January 24. After the dinner, short business sessions were held by each society, with the following results for the medical society: Dr. S. J. Deur of Lake View, president, and Dr. H. N. Neu of Sac City, secretary and treasurer. The scientific program of the evening was furnished by William L. Shearer, M.D., professor of surgery of the University of Nebraska, Omaha, who spoke on The Relationship of Diseases of the Oral Cavity to Remote Disease. His paper provoked much interesting comment.

H. N. Neu, M.D., Secretary

Scott County

Members of the Scott County Medical Society were entertained by the Schlegel Drug Stores of Davenport, at a dinner held at The Outing Club, Tuesday, January 2. F. E. Schmidt, M.D., associated with the research staff of the Lederle Laboratories, spoke on Management of the Pneumonias, and presented a new motion picture film in colors.

Tama County

Dr. John C. Herman of Traer was selected to head the Tama County Medical Society during 1940, at the recent annual meeting held Thursday, December 28, at Garwin. Other officers include Dr. C. W. Maplethorpe of Toledo, vice president; Dr. A. J. Havlik of Tama, secretary and treasurer; and Dr. F. W. Gessner of Dysart, delegate.

Washington County

The Washington County Medical Society held its regular monthly meeting Tuesday, January 30. A four reel motion picture film on Obstetric Problems, prepared by Dr. Joseph B. DeLee of Chicago, was shown.

W. S. Kyle, M.D., Secretary

Webster County

Gordon R. Kamman, M.D., professor of neurology at the University of Minnesota School of Medicine,

spoke before the Webster County Medical Society Thursday, January 25, at the Wakhonsa Hotel in Fort Dodge. Dr. Kamman's subject was Head Injuries.

Wright County

Officers who will serve the Wright County Medical Society during 1940 are: Dr. S. P. Leinbach of Belmond, president; Dr. I. H. Rarick of Eagle Grove, vice president; Dr. J. R. Christensen of Eagle Grove, secretary and treasurer; Dr. R. D. Bernard of Clarion, delegate; and Dr. E. D. Tompkins of Clarion, alternate delegate.

Sioux Valley Medical Association

Dr. John H. Henkin of Sioux City was named president of the Sioux Valley Medical Association at the closing session of the annual meeting held in Sioux City, January 17 and 18. Other officers who were re-elected are as follows: Dr. E. A. Kilbridge of Worthington, Minnesota, vice president; Dr. Roy E. Crowder of Sioux City, secretary; and Dr. Frank P. Winkler of Sibley, treasurer.

PERSONAL MENTION

Dr. Madelene M. Donnelly, who has practiced in Mason City for the past ten years, is leaving that city and moving to Columbus, Mississippi, where she has accepted a position as physician for the Mississippi State College for Women.

Dr. Ernest Shaw of Indianola discussed "Medical Facilities in the United States", at the meeting of the Iowa Farm Bureau Women, held at the Hotel Ft. Des Moines in Des Moines, Tuesday, January 16.

Dr. Edwin M. Limbert has become associated with the Council Bluffs Clinic, where he will occupy the offices of the late Dr. M. E. O'Keefe. Dr. Limbert was graduated in 1934 from the University of Toronto Faculty of Medicine, Ontario, and comes to Council Bluffs direct from Rochester, Minnesota, where he has just completed a three years' fellowship in surgery at The Mayo Clinic.

Dr. Frank A. Ely of Des Moines was guest speaker for the Creston Women's Club, Monday, January 8, at the first meeting of the year held in the club rooms in Creston. Dr. Ely's subject was "Hobbies in the Home."

Dr. Stephen Bacheller, who was graduated in 1938 from Rush Medical College, University of Chicago, has arrived in Osceola, where he will be associated with the Harken Hospital. Dr. Bacheller has been resident physician at St. Anthony's Hospital in Chicago.

Dr. Ralph E. Smiley of Mason City was the speaker for the local Jefferson Parent Education group Wednesday, January 25. He spoke on "Health in the Home", stressing the importance of vaccination and inoculation for the protection of children.

Dr. Theodore Stuckart has opened offices in West Des Moines for the practice of general medicine and surgery. He had practiced in Dubuque for ten years prior to his location in West Des Moines.

Dr. Gordon F. Harkness of Davenport was the speaker of the evening for the Davenport and Rock Island-Moline branches of the American Association of University Women, Friday, January 12, at a meeting held in the Davenport Y. W. C. A. club rooms. Dr. Harkness spoke on "State Medicine," and his address was followed by a panel discussion, participated in by all members present.

MARRIAGES

Miss Velma Holets of Swisher and Dr. Robert C. Hardin of Thompson were married Wednesday, December 27, in Cedar Rapids. After a short wedding trip the young couple returned to Iowa City, where Dr. Hardin is a resident physician in the internal medicine department of the State University of Iowa, College of Medicine.

The marriage of Nellie B. Sayers of Milwaukee, Wisconsin, and Dr. Fred F. Agnew of Independence, took place Saturday, December 23, at St. Luke's Methodist Rectory in Dubuque. They are living in Independence where Dr. Agnew has been practicing for many years.

DEATH NOTICES

Scruby, Leone Morden, of Des Moines, aged sixty-three, died January 25 as a result of a cerebral hemorrhage. She was graduated in 1905 from the University of Illinois, College of Medicine, Chicago, and at the time of her death was a member of the Polk County Medical Society.

Standeven, John Frank, of Oakland, aged fifty-four, died January 15 after several weeks' illness. He was graduated in 1911 from Creighton University School of Medicine, Omaha, and at the time of his death was a member of the Pottawattamie County Medical Society.

Warnock, Francis B., of Sioux City, aged eighty, died suddenly December 28 of coronary thrombosis. He was graduated in 1882 from the State University of Iowa, College of Medicine, Iowa City, and at the time of his death was a member of the Woodbury County Medical Society.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

Early American Medical Journals Available in the Iowa State Medical Library

THE ECLECTIC REPERTORY AND ANALYTICAL REVIEW

JEANNETTE DEAN-THROCKMORTON, Ph.B., A.M., M.D.,

Des Moines, Iowa

The Eclectic Repertory and Analytical Review began its existence in October, 1810, and flourished for ten years. The Iowa State Medical Library is fortunate in having a complete file of the ten volumes, 1810-1821, which now are rare and greatly prized for their historic value.

The title page announces that it is "edited by a Company of Physicians", whose industry, diligence and ambition one cannot doubt, since immediately following the "Company of Gentlemen" appears a brief quotation from Horace, evidently a favorite with them as with the writer, "... Apis matinae more modoque", which translated reads, "As busy as a bee in early morning", leaving us to infer the same highly prized qualities inherent in the above Company.

However, industry alone did not direct the activities of the editors, for a second quotation immediately following implied that the Company of Physicians possessed other sterling and admirable traits of intellect, reason, logic and desire for knowledge. "Nullis unius disciplinae legibus adstricti, quibus in philosophia necessario paremus, quid sit in quaque re maxime probabile semper requiremus" (Cicero), which freely translated reads, "Bound by no laws of formal investigation which we follow without deviation in philosophy, we shall always seek to find out in any case whatever, what is the most probable cause." This ambition to find out the cause and explanation of things is indicated in the name of the journal by the words eclectic and analytical, of which the former may need a word of explanation. Since eclecticism had not yet been founded, and since

the Journal ceased publication in 1821, years before there was an eclectic school of medicine, the word is used with the meaning of selective.

Volume I, 1810-1811. This volume well illustrates its selectiveness, when we observe that it opens with an essay by Edward Jenner, physician, poet and father of vaccination, who writes on a case of congenital smallpox. Following this is an article by Astley Cooper on Aneurism of the Carotid Artery. John Cheyne contributes two articles: one on Hydrocephalus Acutus, or Dropsy of the Brain; and the other on croup in which he speaks of the pathology of the membrane of the larynx and bronchia and the seriousness of epidemic peripneumony.

In spite of the difficulties and almost prohibitive cost of illustrations, there is an excellent steel engraving on page 506 adorning an essay by Joseph Parrish on A Case of Aneurism of the Femoral Artery, which was spontaneously cured. The patient, a woman forty-three years of age, was attended by Drs. Wistar, Physick, Hartshorne and James, who agreed that rest in bed with moderate and equable pressure by bandage was the best treatment. Death a year later allowed the diagnosis of aneurism to be confirmed by autopsy. The writer reviews the researches of John Hunter, Baille and Dubois in similar cases and concludes with these remarks, "If something could be contrived like the spring truss and pad, with a screw adapted to it, half a turn with the screw might be made every day until the requisite degree of compression was affected. In this manner it would be so gradual . . . that patients would bear it without

difficulty; and it offers another very important advantage: as thereby the anastomosing vessels would have time gradually to enlarge . . ."

Volume II, 1812. Edward Barlow, M.D., Member of the Royal College of Surgeons in Ireland, wrote on A Case of Dysphagia, together with some other Unusual Affections, supervening an Inflammation of the Lungs, wherein a Gum Elastic Tube was advantageously employed as a passage to the stomach. This was doubtless the first time that a stomach tube was ever used, since the essayist states, "A lady of this city whose age was sixty-seven, was seized in November, 1805, with symptoms of pulmonic inflammation. On Saturday, the 23rd day of November . . . I passed a gum elastic tube into the stomach." John Bostock, M.D., reported on the Gelatine of the Blood.

John Syng Dorsey, M.D., had an article on Inguinal Aneurism cured by tying the External Iliac Artery in the Pelvis. This essay is embellished by a full-page illustration of which Dr. Dorsey remarks, "the illustration is intended to point out the part where the operation was performed, and the instruments used to convey the ligature round the artery."

John Edwards Stock, M.D., compiled Memoirs of the Life of Thomas Beddoes, M.D., with an Analytical Account of His Writings. Nathaniel Chapman, M.D., was the author of An Account of a Case of Inflammation of the Vessel, from Venesection, which terminated fatally. This interesting account of a fatal complication of an accepted mode of treatment, performed elsewhere three days previously, holds ones attention to the end. Nathaniel Chapman could write entertainingly, speak with wit and gaiety, was noted for his kindheartedness, engaging personality and sterling character; hence it was no wonder that he was unanimously chosen as the first president of the American Medical Association.

Volume III, 1813. William Wood, Esq., Member of the Royal College of Surgeons, Edinburgh, reported On Painful Subcutaneous Tubercle. Philip Syng Physick, M.D., professor of surgery in the University of Pennsylvania, submitted An Account of a New Mode of Extracting Poisonous Substances from the Stomach. Twin boys of three months with "hooping cough" had been given laudanum by their mother with resultant stupor and convulsions. Since death seemed imminent, a catheter was passed into the stomach and ipecacuanha mixed with water injected, following which the stomach was washed out several times. One infant survived. Dr. Physick states in a footnote that "the idea of washing out the stomach with a syringe and tube had occurred to me at least

twelve years ago. . . . In the year 1809, Dr. Dorsey performed the operation of washing out the stomach. . . . Since writing the above I have been informed that a French surgeon has lately proposed injecting the stomach."

Under the caption Curious and Interesting Experiments appears an account of the successful freezing of quicksilver by Professor Leslie of Edinburgh, and raises the question in the scientific world of whether "liquids may yet be rendered solid, and gases converted into liquids". Joseph Parrish, M.D., reported Observations Relative to the Application of a Ligature to the Subclavian Artery in Cases of Wounds and Aneurisms, accompanied by two plates. He reviewed the known cases in which the attempt had been made to ligate this artery, and appended two steel engravings, one of the instruments used and the other of the pathologic anatomy discovered. The latter, a page and a half in size, is the very epitome of progress since in it the arteries and veins are depicted in red and blue colors.

John Cheyne, M.D., Fellow of the Royal College of Physicians, Edinburgh, of the King and Queen's College of Physicians in Ireland, discussed Cases of Apoplexy and Lethargy; with Observations upon the Comatose Diseases. This article, originally written in 1812, preceded by six years his famous essay on A Case of Apoplexy, in which the Fleshy Part of the Heart was converted into Fat. It was this latter essay which gave to the medical world the eponym of Cheyne-Stokes respiration. Benjamin Rush, M.D., professor of medicine in the University of Pennsylvania, published some Remarks Upon Hydrophobia. In this essay he reported a fatal case and regretted that he had not "previously been made acquainted with the plan of introducing a flexible tube into the stomach". He raised the question, "Did the paralysis result from the affection of the throat, or was it independent of that affection?" Ashley Cooper, Esq., F.R.S., Surgeon to Guy's Hospital, wrote on Dissection of a Limb on which the Operation for Popliteal Aneurism had been Performed. This is illustrated by a steel engraving in which the arteries are carefully colored by hand in red.

Near the close of the volume appears the obituary of Dr. Benjamin Rush, who died in his sixty-eighth year on April 18, 1813. Here we learn that his natural inclination was toward law, from which he was dissuaded. He went abroad to complete his medical education in Edinburgh, London and Paris, locating in Philadelphia on his return. He sat in Congress and signed the Declaration of Independence, was Physician-General to

the American Army in 1777, and was Treasurer of the United States Mint for many years. He taught theory and practice of medicine in the College of Philadelphia and the University of Pennsylvania, and is best known for his writings on yellow fever in Philadelphia in 1798 and his four volumes of *Medical Inquiries and Observations* published in 1809, which gem of early medical texts is also in the Iowa State Medical Library. His biographer concludes, "he was a patriot, statesman, physician, great in every phase of these capacities, but his highest style was Christian".

Volume IV, 1814. T. Bateman, M.D., in an article on *A Case of Secondary Smallpox, with References to Some Cases of Similar Nature*, concluded that smallpox may occur a second time in the same individual and may prove fatal. James Edward Smith, M.D., wrote *Lachesis Lapponica, or a Tour in Lapland*. J. R. Farre, M.D., who reported *Cases of Cynache Laryngea and Cynache Trachealis*, was of the opinion that a fatal termination might have been averted in some cases had "bronchotomy been performed and the windpipe opened". He cited Dr. Thomas White of Leyden who successfully performed this operation in 1786.

Volume V, 1815. Charles Bell, F.R.S., wrote *On the Muscularity of the Uterus*. John Abernethy, F.R.S., published *Surgical Observations on Tumours, and on Lumbar Abscesses*. Abraham Colles, one of the professors of anatomy and surgery in the Royal College of Surgeons in Ireland, discussed *Fracture of the Carpal Extremity of the Radius*. This important but brief essay commences, "The injury to which I wish to direct the attention of surgeons, has not, as far as I know, been described by any author" and continues in a clear and concise manner to describe the fracture at the wrist which would be known to later generations by his name, 'Colles' Fracture.

Volume VI, 1816. Under biography appeared *Memoirs of the Celebrated Dr. Harvey*, from Notes collected from the Bodleian Library and Ashmolean Museum. "Lapt in lead, and on his breast in great letters Dr. William Harvey, he lies buried in a vault at Hampsted in Essex, Aetat. 80." Daniel Drake's essay on *Medical Topography of Cincinnati*, indicated his early interests and was part of the foundation for his large and famous volume published thirty-five years later entitled, *A Systematic Treatise, Historical, Etiological, and Practical, on the Principal Diseases of the Interior Valley of North America, as They Appear in the Caucasian, African, Indian, and Esquimaux Varieties of its Population*. Upon this latter volume his fame as a thinker and medi-

cal philosopher will mainly rest. A copy of this valued work is in the Iowa State Medical Library.

The obituary of John Coakley Lettson, M.D., F.R.S., began "Died at his home after a few days illness, aged, seventy-one, one of the ornaments of the age . . ." He was founder of the Medical Society of London and its first president. Of the many rhymes written about him, one reads:

When any sick to me apply
I physics, bleeds and sweats 'em;
If after that they choose to die,
Why, verily—

I. Lettson.

Philip Syng Physick wrote a brief letter on ligatures, suggesting that sutures made of leather might be absorbable. He had requested Dr. Dorsey to try such ligatures on a horse, with the result justifying his expectations. He added that Dr. Hartshorne, acting on the suggestion of Dr. Physick, had used ligatures made of parchment on some of the arteries after an amputation of the thigh, and they were found dissolved at the first dressing.

(To be concluded next month)

MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS AND COMMITTEES

Meeting of the Medical Economics Committee Friday, January 12, 1940

The Medical Economics Committee of the Iowa State Medical Society met at the Hotel Fort Des Moines in Des Moines, Friday, January 12, 1940, with the following persons present: Drs. E. E. Shaw of Indianola, T. F. Thornton of Waterloo, Charles T. Maxwell of Sioux City, B. B. Parker of Centerville, E. O. Muhs, T. M. Miller and J. L. Klein, Jr., of Muscatine, A. S. Beatty of Creston, J. R. Wright and F. M. Roberts of Knoxville, and Mrs. Stickles of Creston. This group discussed the FSA program which has been in effect in Muscatine, Union and Marion Counties since last spring, and after a recess for lunch, continued the discussion with representatives of the FSA (Mr. Anway, Mr. Hammerly and Dr. Dwyer). All persons except committee members left the meeting, and collection agencies were discussed. Meeting adjourned at 4:30 p. m.

Meeting of the Executive Cancer Committee Wednesday, January 31, 1940

The Executive Cancer Committee of the Iowa State Medical Society met at the Hotel Fort Des Moines in Des Moines, Wednesday, January 31, 1940, with Dr. A. W. Erskine of Cedar Rapids and Dr. H. W. Morgan of Mason City present. A tentative plan for developing cancer units in various localities in Iowa was formulated, but definite procedures were not decided upon. A conference with Dr. Bierring was held during the noon hour, and the meeting adjourned at 2:00 p. m.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- TEXTBOOK OF NERVOUS DISEASES—By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.
- OBSTETRICAL PRACTICE—By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.
- THE NEWER KNOWLEDGE OF NUTRITION—By E. V. McCollum, Ph.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University. Fifth edition, entirely rewritten, illustrated. The Macmillan Company, New York, 1939. Price, \$4.50.
- SYNOPSIS OF PEDIATRICS—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.
- POPULATION RACE AND EUGENICS—By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by author, 1939. Price, \$3.00.
- TUMORS OF THE HANDS AND FEET—By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.
- CANCER OF THE LARYNX—By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.
- SCLEROSING THERAPY—Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.
- THE NEW INTERNATIONAL CLINICS, VOLUME IV, NEW SERIES TWO. Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.
- THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART—By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.
- THE 1939 YEAR BOOK OF GENERAL SURGERY—Edited by Everts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.
- LOVE PROBLEMS OF ADOLESCENCE—By Oliver M. Butterfield, Ph.D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

BOOK REVIEWS

SEX AND INTERNAL SECRETION

Edited by Edgar Allen, M.D., Yale University. The Williams and Wilkins Company, Baltimore, 1939. Price, \$12.00.

The science of endocrinology is growing by leaps and bounds. It has now reached the stage of development where its clinical application has become of enormous benefit to sick human beings. Therefore, it is absolutely necessary for the practitioner of medicine to keep abreast with that phase of endocrinology which directly concerns the sick. It is, of course, equally important for individuals doing research work in this field to have the published articles on the various phases of this new science evaluated and brought up to date by experts.

The present volume fills the clinical as well as the research need in an admirable way. It is a veritable storehouse of exact endocrine information. The knowledge about each phase of the science of the ductless glands has been brought strictly up to date by the very men who are most responsible for the rapid growth of endocrinology. The list of contributors constitutes the men who occupy the front rank in endocrine research. Every chapter in this 1,346 page volume is not only lucidly written but is also clearly and beautifully illustrated.

A comprehensive bibliography is attached to each of the twenty-four chapters which comprise the book. It is difficult to see how the developing endocrine knowledge could be more completely, more accurately or more logically presented than has been done in this volume. It is invaluable both to the research worker and to the internist who endeavors to keep abreast with the development in the fascinating field of endocrinology.

D. J. G.

THE GENUINE WORKS OF HIPPOCRATES

Translated from the Greek by Francis Adams, LL. D., Surgeon. The Williams and Wilkins Company, Baltimore, 1939. Price, \$3.00.

This is the fourth edition of the work originally published in 1849 by Francis Adams, a Scottish surgeon. He was commissioned by the Sydenham Society of England to make a complete translation of the works of the famous physician of Cos.

"Lift is short, and the Art long; the occasion fleeting; experience fallacious, and judgment difficult." This is the first paragraph of aphorisms written by Hippocrates in the fifth century B. C. The book is divided into sixteen different sections dealing with specific subjects of medicine and surgery. The keen observation and accurate recording of cases are fascinating features of the work.

This is an excellently edited volume of unusual historical interest. Reading portions of this book at the end of a busy day will help the doctor forget his trials and tribulations and afford him pleasure and pride in his chosen profession.

D. K.

EPIDEMIC ENCEPHALITIS

Third report by The Matheson Commission. Columbia University Press, New York, 1939. Price, \$3.00.

This report follows two previously published reports by the Commission which has studied the subject intensively. This Commission has gathered together the work which has been done on encephalitis by other investigators and by clinical and laboratory

research carried on by the members of the Commission. This work was made possible by the generosity of Dr. William J. Matheson.

The first part of the book is composed of chapters on the work of the Commission, etiology, allied diseases, treatment, and epidemiology. The last half of the volume is devoted to an extensive bibliography.

The work of the Commission presents the efforts of clinical and experimental work by Dr. Gay and Dr. Inez A. Bentley. Following this is a summary of investigation on etiology in which the findings of other research workers are recorded. Few absolute statements are made, and the reader is allowed to draw most of his own conclusions. Various conditions allied to epidemic encephalitis are studied, especially from an etiologic standpoint. A summary of the treatment of encephalitis is then given, and under this heading practically every known method is considered, including drugs, surgery, sera, psychotherapy, and reëducation. The last chapter deals with the epidemiology of the disease, and it contains many tables. This portion also allows the reader to draw many of his own conclusions. The commission is fully cognizant of the fact that in epidemic encephalitis one is dealing with a disease that is protean in nature and capricious in action.

This book gives a concise, comprehensive and complete presentation of the subject. It lacks only the phase of diagnosis, a topic with which the Commission has not concerned itself. H. G. D.

ANESTHESIA: NARCOSIS, LOCAL, REGIONAL, AND SPINAL

By A. M. Dogliotti, M.D., professor of surgery, University of Modena. Translated by Carlo S. Scuderi, M.D., associate in surgery, University of Illinois, College of Medicine. S. B. Debaur, Publishers, Chicago, 1939. Price, \$7.50.

This book is the first Italian treatise on anesthesia. Its author is a surgeon rather than an anesthetist, but one who has made a thorough study of his subject.

The history of anesthesia included in the introduction is merely a repetition of that found in many other works. The section on general anesthesia is useful mainly for the complete descriptions of the central and peripheral pathways of sensibility and their practical application in the field of anesthesia. The theories and laws of absorption, diffusion and elimination of anesthetics are clearly explained. The methods and technics of administration are much the same as those used in this country, although the armamentarium is different. The signs of anesthesia have been more clearly described by American authors. The chapters on local and regional anesthesia are excellent. The author's charts showing the innervation of all areas of the body, and the drawings of the points and directions of injections for field or nerve blocks leave little room for guessing. His evaluation of the sensitivity of various

tissues with the types and strength of solution to be used for each shows why he prefers regional anesthesia in many conditions where we use general anesthesia. The greatest value of the chapters on spinal anesthesia is obtained from the complete anatomic description of the spinal column and its contents. The author devotes considerable space to extradural spinal anesthesia which is rarely used in this country, and recommends it in many conditions for which we use subdural spinal anesthesia.

In his final chapter Dr. Dogliotti discusses the selection of an anesthetic from two standpoints. On the basis of the general physiologic and pathologic condition of the patient his reasoning is the same as that followed in America. On the basis of the site and nature of the operation the reviewer can hardly conceive of the so frequent use of local anesthesia on private patients in this country.

E. P. L.

THE 1939 YEAR BOOK OF GENERAL MEDICINE

By George F. Dick, M.D., J. Burns Amberson, Jr., M.D., George A. Minot, M.D., William B. Castle, M.D., William D. Stroud, M.D., and George B. Eusterman, M.D. The Year Book Publishers, Chicago, 1939. Price, \$3.00.

This concise annual review of general medicine brings all that is new and practical to the internist. It briefly outlines all the advances which have been reported in the medical literature written in the English language during the past year. The authors include short notes of comment where they consider them necessary.

The section on infectious diseases includes a review of sulfanilamide and sulfapyridine, the immediate diagnosis of diphtheriae, equine encephalitis, and some new considerations of the virus diseases. The second chapter discusses the cytology of sputum, treatment of pulmonary hemorrhage, modified Neufeld technic, postural treatment of tuberculosis, mycotic disease and broncholithiasis. The third section discusses the new diagnostic measures and new therapy of the various types of anemia, leukemia, leukemoid states, hemophilia, purpura, and many new conceptions of kidney disease. The chapter on diseases of the heart and blood vessels contains some new interesting revelations of arteriosclerosis, hypertensive therapy, x-ray for angina, and peripheral vascular disease. The final portion of the text deals with the digestive system and metabolism, and includes discussions of nongranulomatous chronic enteritis, intestinal giardiasis, diagnosis of intestinal tuberculosis, decompression of the small bowel in intestinal obstruction, visualization of the liver and spleen by the use of a colloidal solution of iodine, hepatorenal syndrome, and the recent advances in diabetes.

This text contains a wealth of knowledge which enables the busy practitioner to maintain a modern concept of medicine. J. W. C.

GYNECOLOGIC OPERATIONS

By Prof. Dr. Med. Heinrich Martius, director of the University Women's Clinic, Gottingen. Translated by W. A. Newman Dorland, M.D., formerly professor of obstetrics, Loyola University. S. B. Debour, Publishers, Chicago, 1939.

This volume, as the name implies, is essentially a manual of gynecologic operative procedures, as practiced at the Gottingen University Women's Clinic.

The text is clearly and adequately presented by the author, and the translation by Dr. Dorland is excellent. No attempt has been made to present this as a general gynecologic textbook. Symptomatology, diagnosis, differential diagnosis, pathology, treatment, preoperative and postoperative care, as such, have not been included. Each operation is covered by a description, resolving the procedure into steps, a discussion of the normal anatomy and the altered anatomy due to the pathologic process, and numerous drawings and diagrams. The work is unique in that the anatomy is discussed in relation to the operative procedure, rather than in a separate chapter. Thus the "reference reader" is given a complete discussion under one heading. One is able to follow the operative technic by reference to the drawings and diagrams, without close attention to the text. The illustrations are good and very generously used throughout. The chapter on urinary fistulae is especially noteworthy, as is the exhaustive description of the minute anatomy of the vesical sphincter.

The volume should be of particular value to the apprentice learning gynecologic surgery, because each operation is divided into readily comprehensible steps. The experienced operator should value it as a reference operative manual.

R. M. C.

INJURIES OF THE NERVOUS SYSTEM

By Otto Marburg, M.D., clinical professor of neurology; and Max Helfand, M.D., assistant clinical professor of neurology and psychiatry, Columbia University. Veritas Press, New York, 1939. Price, \$3.00.

The authors have presented a timely work in view of the many injuries of the nervous system brought about by our increased rates of locomotion. The book is divided into eleven chapters under the following headings: concussion, contusion, sequelae of concussions and contusions, spinal cord injuries, injuries of the peripheral nerves, electric injuries, caisson disease, trauma as a cause of organic diseases, and poisonings.

The first chapter deals with the mechanics and definitions of injuries and the second chapter with the symptoms and findings in head injuries. The third and fourth chapters cover concussion and contusion of the cranial contents, including the cranial

nerves. The next chapter takes up the sequelae which follow the conditions discussed in chapters three and four. Chapter six covers the matter of cord injuries from the subject of causes to therapy. (The authors are very conservative in their treatment of the latter.) The seventh chapter concerns injuries to the peripheral nerves and includes a table of the functions and disturbances caused by trauma to them. Two short chapters are devoted to electrical injuries and caisson disease. Chapter ten is an important contribution to the subject of trauma as a cause of organic disease. The authors acknowledge that in many instances it is difficult to determine exactly what part trauma has played and that the facts in each particular case necessarily govern the conclusions in that regard. The last chapter considers the effect of some nine different poisons upon the nervous system. This work also contains some sixteen illustrations of macroscopic and microscopic specimens.

The text presents very valuable material which will serve as a guide to those especially interested in trauma and its relationship to organic and functional disturbances of the central nervous system and its peripheral branches.

H. G. D.

THE NEW INTERNATIONAL CLINICS

Volume III, New Series Two. Edited by George Morris Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.

Each volume of this work presents a wide variety of papers on pertinent subjects in medicine. This book includes sixteen original contributions, six clinics, and a review of Obstetric Hemorrhage by N. J. Eastman.

Alton Ochsner and Michael DeBaKey discuss Peripheral Vascular Disease, classified as first, vasospastic functional disease; second, vasospastic organic disease; and third, organic degenerative disease. Methods of diagnosis are presented and the therapeutics depends on the anatomic and functional disturbance in the vessels. Laurence, Scott and Tuttle relate studies on leukemia by the use of radioactive phosphorus in which they conclude that it offers a selective method of irradiation which justifies its cautious use in this fatal disease. Paul and Trosk of New Haven present recent developments in the epidemiology of poliomyelitis, indicating a strong brief for its being a gastro-intestinal disease. Mackey of Montreal discusses the differential diagnosis of lesions of the spinal cord, emphasizing localization of the lesion.

Other papers are of equal interest and instructive value. The variety of subjects and the quality of the individual papers in "The Clinics" provide an opportunity to keep abreast of modern medicine.

D. K.

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RHEUMATIC HEART DISEASE*

WITH REVIEW OF NINETY-FIVE CASES

HERBERT W. RATHE, M.D., Waverly

Rheumatic heart disease is the result of rheumatic fever, which is a generalized systemic infection much like tuberculosis or syphilis. The cardiac involvement in rheumatic fever is the chief manifestation of the disease. It is frequently thought to be a complication of the polyarthritides commonly called "inflammatory rheumatism", whereas this polyarthritides is present in only a few more than half of the patients having the disease. Sir Thomas Lewis¹ says, "To understand rheumatic heart disease, as it is seen in its developed forms, it is necessary to study its evolution." In following out this suggestion, I shall observe the nomenclature of the American Heart Association and designate this disease as rheumatic fever, active and inactive.

The geographic and seasonal distributions of this disease are interesting. In its active stage, rheumatic fever most always occurs in the north temperate zone and is seldom seen in the south. Inactive cases with chronic valvular heart disease of the rheumatic type are seen occasionally in tropical and subtropical regions, but the active type of case that is found in the north is seldom observed there. It is very difficult to estimate the frequency of its occurrence in childhood. A recent study of Philadelphia school children by Cahan² revealed that 0.5 per cent had acquired heart disease. This is in all probability a fair figure for the entire north temperate zone of the United States. These figures would run somewhat higher for England since the active stages of the disease seem to be more prevalent there. The active stages of the disease also follow a seasonal trend; they are much more likely to occur during cold, damp weather which in this country is usually late winter and early spring. The in-

creased frequency at this season may also be related to the greater number of upper respiratory infections existing at this time. General resistance to infection is always at a low ebb after the winter season. It was noted in our vicinity that acute cases were uncommon a few years ago during a drought and when severe cold weather did not occur for two winters. The following year there was normal moisture and a normal winter, and active rheumatic fever was again seen. Rheumatic fever varies greatly as an etiologic factor in the cases of organic heart disease admitted for hospitalization in the United States. In Salt Lake City³ 44 per cent are rheumatic in origin, in New York City⁴ 42.7 per cent are rheumatic in origin, in the Chicago area⁵ they make up 29.2 per cent of the cases of organic heart disease, at the Iowa State University Hospital⁶ 27.3 per cent, in Texas⁷ 3.4 per cent, and in our group 14.6 per cent. (See Chart I.)

In addition to the geographic and seasonal factors, the economic status and familial tendency are thought by some to be of importance. There is also the belief that a dietary deficiency, the lack of Vitamin C, plays an important part. This might be accounted for by the fact that people in low income groups cannot afford to buy foods high in Vitamin C. In some of the series of cases reviewed, there is a striking familial incidence of this disease. Of the 95 cases I am reviewing, 24.2 per cent or 23 patients gave a definite history of one or more in the family having had this disease. Illustrations from this series were two brothers, ill simultaneously with active rheumatic fever, and one aunt with inactive rheumatic fever. Another illustration was a young man who died while in the active stage; he had a mother and two aunts in the inactive stage. This tendency to "rheumatic families" should make us suspect rheumatic infection in cases of unexplained fever and indefinite symptoms where one or more in the family have had rheumatic fever.

Active rheumatic fever is seen most often in childhood, and for this reason the age distribution

*Presented before the Johnson County Medical Society, Iowa City, January 3, 1940.

of the disease should be discussed. The primary infection is found in children as young as three years, but the maximum incidence of the first attack comes between the ages of five and twelve years with the peak varying from the seventh to the tenth year. It is very unusual for the first attack of active rheumatic fever to occur after the twentieth year. When a history of the primary attack was obtainable, it was found in the present group studied that the active cases were 9.9 years of age, and the inactive cases thirteen years of age when the first infection occurred. It is especially noteworthy in all the series studied that there is a sudden drop in the incidence of primary infection after the age of twelve years. This would seem to corroborate the ideas of some observers that new powers of resistance are attained at the time of puberty.

The etiology of rheumatic fever is unknown; however, it is believed to be bacterial, possibly a streptococcus. The pathologic classification of the disease is rheumatic fever, active and inactive, and is outlined as follows from the "Criteria for Diagnosis" by the American Heart Association:

A. Active Rheumatic Fever.

1. Active valvulitis, consisting of verrucous vegetations along the line of closure of the valves, a leukocytic infiltration of the valve leaflets, and an increase of capillaries with interstitial changes.

2. Active mural endocarditis in the left auricle.

3. Active myocarditis — Aschoff nodules are found beneath the endocardium in the perivascular connective tissue or in the interstitial tissue supporting the muscle bundles.

4. Active pericarditis rheumatic can be diagnosed only on finding the typical endocardial and myocardial lesions.

B. Inactive Rheumatic Fever.

1. Healed valvulitis, an increase of connective tissue with scarring. The two outstanding processes which produce defective valves are:

- a. Fusion of the cusps, causing a stenosis of the orifice and an insufficiency of the valve.

- b. Fusion and retraction of the chordae tendinae of the mitral leaflets, rarely of the tricuspid, causing valvular insufficiency.

Fusion of the valve leaflets predominates, especially after repeated episodes of rheumatic fever. This accounts for the high incidence of stenotic valvular deformities. (See Charts III, V, and VII.) Other chronic changes are healed mural endocarditis with thickening, small fibrous avascular scars of chronic myocarditis distributed chiefly around the blood vessels, and healed pericarditis. There are also rheumatic changes found in the coronary arteries, the aorta, and a hemorrhagic

type of pulmonary lesion classified as a rheumatic pneumonia.

The symptoms and signs of active rheumatic fever are extremely variable in type and severity. Polyarthritides, when present, is usually definite. It is the result of the rheumatic infection in the joints and involves the smaller ones. These joints are red, swollen, painful and tender. There is a tendency for the process to skip from one joint to another, attacking an individual joint for a day or two and then subsiding. As a rule, the polyarthritides clears entirely in four to six weeks. The accompanying fever which runs from 100 to 101 degrees persists longer, but at a somewhat lower level; many times it is discovered only after taking the temperature per rectum at short intervals. Occasionally the joint symptoms may be mild. Of the 95 cases I have studied, 56 patients or 58 per cent gave a definite history of polyarthritides; three also had chorea. (See Charts II, IV, and VI.) Chorea, which is a cerebral manifestation of rheumatic involvement of the brain, occurs in about five per cent of cases with rheumatic fever. In this series it was present in eight cases, in three of which polyarthritides was also present. Bland and Jones⁸ have recently studied a series of 134 patients with pure chorea and found only three per cent to be rheumatic. Their conclusions were that there were other causes of chorea besides rheumatic infection.

There is a third type of clinical picture which does not follow a definite pattern. The chief complaints are anorexia, lassitude, occasional nose bleeds, indefinite aches and pains, and a low grade fever. These are the patients one sees with active infection who have been indefinitely ill for several months and who have been going to school and occasionally participating in athletics. When cardiac insufficiency intervenes, we then see them for the first time. On the other hand, many of these patients are undiscovered and in later life are found to have crippled hearts due to rheumatic infection.

The patient with the active type of rheumatic fever usually appears ill and has a moderate pallor. In some localities, subcutaneous nodules and annular erythema of the skin are frequently found; their occurrence in this region seems to be rare. I have observed annular erythema in one case, and in only one case have I found rheumatic nodules. The chief finding is that of pancarditis or the cardiac manifestations of rheumatic fever. All patients with rheumatic fever have cardiac involvement during the active stage of the disease. In some, the process clears without serious scarring of the valves, and chronic valvular heart disease, which is the manifestation of the inactive stage, is

not found. This was true in only one case of my group. In many instances, physical signs of an active carditis are not present during the acute stage and do not appear for weeks or months. The most common early sign is a systolic murmur at the apex. This is a result of the myocardial changes which weaken it and is followed by cardiac dilatation and mitral insufficiency. Many times this clears and there is no permanent damage. Occasionally during the acute phase of polyarthritis or chorea a tachycardia is the only cardiac finding, and several months later a murmur develops. Early there may be a presystolic or diastolic murmur at the cardiac apex which is soft but definite. This is caused by a stenosis of the mitral valve from swelling and edema. This diastolic murmur may later disappear or gradually become the typical diastolic murmur of mitral stenosis. On the other hand, evidence of mitral stenosis may not develop for six months or more.

Another sign of active carditis is aortic valve disease. The earliest change is aortic insufficiency manifested by a diastolic murmur along the left sternal border. This lesion may develop insidiously and be variable before it can be definitely established, or it may be fulminant. Aortic stenosis is thought to be rheumatic in origin in a large majority of instances. Its rate of development is slow and it rarely causes symptoms before middle age; then, arteriosclerosis may be superimposed on the rheumatic lesion.

Pericarditis, when severe, is manifested by a sharp rise in temperature, precordial pain, nausea and the finding of a friction rub over the precordium. Occasionally effusion may develop and cause sufficient cardiac embarrassment to necessitate tapping of the pericardial sac. Rarely, if ever, does rheumatic pericarditis cause a constrictive pericarditis. There is seldom an involvement of the endocardium and pericardium without myocardial changes. These changes cause cardiac enlargement, as do the valvular and pericardial lesions. Progressive enlargement of the heart is always a sign of activity of the infection. Arrhythmias, such as auriculoventricular block and auricular fibrillation during the active stage, are signs of myocarditis and are usually of grave prognostic significance, as are signs of cardiac insufficiency early in the disease.

The transition from an active to an inactive stage of the disease takes months and sometimes years. Recent pathologic studies⁹ make it doubtful if some cases ever become inactive. The findings of the inactive stage are those of chronic valvular heart disease without fever and with a normal sedimentation rate. Not infrequently the disease may become inactive and a recrudescence

occur; this may happen several or more times. In this series, 30 of the 61 who gave a definite rheumatic history had one or more recrudescences; four was the highest number had by any one case. The more severe cases are the ones in which patients have had one or more relapses. Seldom does a patient die in the first attack. Recrudescences are usually brought on by an upper respiratory infection, not always tonsillitis. A recent study by Rogatz¹⁰ showed that as a case becomes inactive, the temperature was first to drop to normal. Following this in order, the pulse became slower, the immature polymorphonuclears disappeared from the blood, and the sedimentation rate became normal. I believe in the absence of all clinical signs of activity that a normal sedimentation rate is a reliable substantiating finding.

The treatment of the active stage of the disease consists chiefly of bed rest. During the early stages, the patient should be kept very quiet and as comfortable as possible. The use of large doses of analgesics, such as acetyl salicylic acid with soda or magnesium oxide, is recommended. The dosage should be modified as the patient improves, but continued for some time after the acute stage has subsided. Some observers feel that it prevents recrudescences, and although its action is not specific, it does seem to be worthwhile. To date, no specific therapy has been found. However, fever, sulfanilamide and its derivatives, and many other drugs have been used but not as yet proved to be of any greater value than aspirin and rest. The rest should be continued until all signs of activity have subsided, and then the patient may be allowed up and about. His activity should be graduated much as one would that of a tuberculous patient. The degree of activity he is to reach will depend to a great extent upon the degree of permanent damage the heart has received, and this often cannot be determined for a year or more. I do not believe that any child who has had rheumatic fever, regardless of whether or not one can diagnose a valvular defect, should ever take part in competitive athletics. During the course of the active disease, signs of heart failure may develop and they should be treated in the usual manner. If there are no signs of heart failure, digitalis and other cardiac drugs are not indicated, in fact they may be harmful.

Since the period of bed rest usually runs from nine to twelve months, one must find ways and means of keeping the patient busy and happy. Levine says that all of these rheumatic fever patients are of superior intelligence and have freckles. I have found this to be true, and it taxes one's ingenuity to keep them interested with hand-

ircraft, reading and games. The missing of a year's schooling means little to them since they usually make it up very rapidly. As they pass into the inactive stage the problem then is to manage their heart disease and try to prevent recrudescences. If the tonsils are diseased, they should be removed; however, reliable studies, especially a recent one by Ash,¹¹ indicate that the presence or absence of tonsils has little influence on either the development of the disease or recrudescences. This study also points out that an exacerbation is very likely to occur if diseased tonsils are removed before the inactive stage of the disease is reached.

After the disease develops it is doubtful if a change in climate will be beneficial; however, a sunny evanescent climate probably is beneficial in preventing recurrences. An ideal situation, of course, would be for the individual who had inactive rheumatic fever to live always in a tropical or subtropical climate. A well-balanced, easily digestible diet is essential. This diet should be high in all of the vitamins, but especially well fortified with Vitamin C. This may be done with citrus fruits or ascorbic acid, twenty-five to fifty milligrams daily. In some cases it may be necessary to give sedatives to counteract restlessness and anxiety. Any measure which will encourage the patient to rest and cooperate should be tried.

In conclusion, I would like to emphasize that rheumatic fever is a disease of the heart; it may be insidious in its development but once developed, the patient should be considered as having a crippled heart.

CHART I—CASE REVIEW

650—Total Organic Heart Disease

Arteriosclerosis and Hypertension.....	473	72.9%
Rheumatic Fever.....	95	14.6%
Hyperthyroidism.....	55	8.4%
Congenital.....	11	1.6%
Syphilis.....	8	1.2%
Etiology Unknown.....	8	1.2%

CHART II—RHEUMATIC FEVER ACTIVE

19 Cases—20%

Males.....	11	57.8%
Females.....	8	42.2%
Average age at time of observation, 16 years		
Average age at time of known initial attack, 9.9 years		
Family History.....	6	31%
History of Polyarthrits (Chorea—1).....	11	57.8%
2—Four known attacks		
5—Two known attacks		

Course

Improved: Advised Limited Activity.....	7	36.4%
Improved: Activity Limited by Lowered Cardiac Reserve.....	6	31.5%
Died: Active Rheumatic Fever.....	6	31.5%
Polyarthrits, more than one attack.....	5	
Cardiac Hypertrophy.....	6	

CHART III—RHEUMATIC FEVER ACTIVE

Cardiac Manifestations in 19 Cases

Cardiac Hypertrophy.....	7	36%
Mitral Stenosis.....	7	36%
Mitral Stenosis and Insufficiency.....	8	42%
Mitral Stenosis and Insufficiency and Aortic Insufficiency.....	3	15%
Pericarditis.....	4	21%
Auricular Fibrillation.....	1	.055%
No Evidence of Valve Deformity.....	1	.055%

CHART IV—RHEUMATIC FEVER INACTIVE

Total Group 76 Cases—Survival Group 47 Cases

Males.....	20	42.5%
Females.....	27	57.5%
Average age at time of observation.....	42 years	
Average age at time of known initial attack.....	13 years	
Family History.....	13	27%
History of Polyarthrits (Chorea—4).....	33	70%
5—Three known attacks		
8—Two known attacks		
Time Elapsed Since First Examination		
Longest Period.....	11 years	
Shortest Period.....	4 months	
Average Period.....	5 years	

CHART V—RHEUMATIC FEVER INACTIVE

Survival Group—47 Cases

Cardiac Manifestations

Cardiac Hypertrophy.....	30	63%
Mitral Stenosis.....	23	48%
Mitral Insufficiency.....	1	2.1%
Mitral Stenosis and Mitral Insufficiency.....	13	27%
Aortic Stenosis.....	3	6.3%
Aortic Insufficiency.....	3	6.3%
Aortic Stenosis and Aortic Insufficiency.....	1	2.1%
Double Aortic and Double Mitral.....	3	6.3%
Chronic Pericarditis.....	1	2.1%
No Valvular Disease.....	1	2.1%
Cardiac Insufficiency at Examination.....	18	38%
Angina of Effort.....	4	8.4%
Auricular Fibrillation.....	14	28%
Paroxysmal Fibrillation.....	4	8.4%
Auricular Flutter.....	3	6.3%
Left Bundle-branch Block.....	1	2.1%
Auriculoventricular Block.....	1	2.1%
Superimposed Arteriosclerosis.....	7	14.8%

CHART VI—RHEUMATIC FEVER INACTIVE

Fatal Group

Total.....	29	38%
Males.....	14	48%
Females.....	15	52%
Average age at time of observation.....	48 years	
Average age at time of known initial attack.....	13 years	
Family History.....	4	13.6%
History of Polyarthrits (Chorea—3).....	17	58%
More than one attack—10		
Age at Death:		
Average.....	51 years	
Oldest.....	72 years	
Youngest.....	19 years	

Cause of Death

Non-Cardiac Cause.....	1	
Superimposed Arteriosclerosis—Coronary Occlusion.....	5	
Congestive Heart Failure.....	19	
Embolie.....	4	
Cerebral (Arteriosclerosis).....	2	
Peripheral.....	1	
Pulmonary.....	1	

CHART VII—RHEUMATIC FEVER INACTIVE

Cardiac Manifestations in Fatal Group

Cardiac Hypertrophy.....	25	86%
Mitral Stenosis.....	5	17%
Mitral Stenosis and Insufficiency.....	15	51%
Mitral Insufficiency.....	1	3.4%
Aortic Stenosis.....	2	6.8%
Aortic Insufficiency.....	1	3.4%
Double Aortic and Double Mitral.....	5	17%
Chronic Pericarditis.....	1	3.4%
Superimposed Arteriosclerosis.....	10	34%
Auricular Fibrillation.....	10	34%
Auricular Flutter.....	2	6.8%
Left Bundle-branch Block.....	1	3.4%

CASE REPORTS

Case 1. R. B., female, ten years of age, admitted January 24, 1939.

Entrance Complaint: Irregular fever and nose bleeds.

Present Illness: Began on November 15, 1938, with sore throat, fever and cold. She also complained of indefinite pains in the arms and legs. After a few days it was noted that she had a generalized annular erythematous rash which cleared up in about seventy-two hours. During the period from November 15 to the time of admission the patient ran an irregular fever, often up to 101 degrees. Nose bleeds were frequent but never severe. On January 1, a short diastolic murmur was first noted at the cardiac apex. On admission, the patient had no complaints other than the irregular fever and occasional nose bleeds.

	Virginia ^{1,2}	New York ¹	New England ^{1,3}	Rocky Mountains ³	Texas ⁷	University of Iowa ⁶	Waverly, Iowa
Number of Cases	300	1,000	2,421	867	1,660	1,329	650
Arteriosclerotic	32.4%	22.3%	26.3%	21.1%	20.2%	49.9%	72.9%
Hypertensive	32.6	...	21.7	14.9	57.2	...	...
Angina Pectoris	6.6	...	10.9	...	...	...	...
Total	71.6	22.3	58.9	36.9	77.4	49.9	72.9
Rheumatic	15.6	42.7	29.3	41.0	3.1	27.3	14.6
Thyroid	2.6	...	2.1	9.3	2.5	9.17	8.4
Luetic	7.8	8.6	2.7	1.1	12.7	6.24	1.2
Congenital	0.7	...	1.1	1.1	0.7	2.63	1.6
Unknown	1.6	17.8	2.2	7.3	2.3	2.03	1.2
Subacute . . . . .	...	...	1.4	0.2	0.3	1.6	...

Family History: Negative for rheumatic disease or heart trouble.

Past Medical History: The ordinary diseases of childhood.

Physical Examination: There was a moderate palor. Tonsils were present, but did not appear diseased. The heart was not enlarged, and a diastolic murmur was heard along the left sternal border. Blood pressure 108/64.

X-Ray Examination: There was no evidence of heart enlargement.

Laboratory Findings: There was a moderate secondary anemia, and at one time there was a moderate leukocytosis with a high percentage of mononuclear cells. Sedimentation rate was rapid.

Course: The patient showed a gradual improvement on bed rest. The murmur was variable in its location over the precordium. On December 5, 1939, the sedimentation rate was normal. The patient's general condition was excellent, and there was a diastolic murmur along the left sternal border.

Diagnosis: Rheumatic fever active; aortic insufficiency.

Comment: This case is especially interesting because the onset was indefinite and the valvulitis was not localized until after the active process was subsiding. Early in the disease it was difficult to be sure whether or not the patient had infectious mononucleosis because of a suspicious blood picture. This was the one case in which annular erythema was noted.

Case 2. D. K., male, fourteen years of age, admitted July 15, 1938.

Entrance Complaint: Loss of pep and indefinite pains in the shoulders and hips.

Present Illness: During March, 1938, the patient had an upper respiratory infection with some sore throat. Shortly after this he began to complain of lack of pep and cared less about playing. A week before admission he developed a pain in his left shoulder which was followed shortly by pains in the elbow and fingers. Later he complained of pains in the left hip. At no time was there any redness or swelling of the joints. There was some loss of weight.

Family History: Negative for rheumatic disease or heart trouble.

Past Medical History: The ordinary diseases of childhood.

Physical Examination: The patient did not appear to be ill. His tonsils were slightly enlarged. There were no enlarged glands. The heart was definitely enlarged to the left. At the cardiac apex there was a palpable thrill and shock, and a harsh presystolic murmur was heard in this region. There was some tenderness in the splenic region. The blood pressure was 108/40, and the temperature was 100 degrees, per rectum.

Laboratory Findings: There was a slight leukocytosis and a rapid sedimentation rate.

Course: The patient was placed on bed rest, but developed congestive heart failure which lasted for several weeks. He was confined to the bed for eight months, at the end of which time he had a normal

sedimentation rate, and all signs of rheumatic activity had disappeared.

Diagnosis: Rheumatic fever; mitral stenosis.

Comment: The history of the development of the disease in this patient illustrates how indefinite the clinical manifestations may be, and how ill the patient may be and yet be up and about.

Case 3. H. L., male, twenty-seven years of age, admitted April 16, 1939.

Entrance Complaint: Shortness of breath and pain in the left chest.

Present Illness: For the previous six months the patient had been having marked shortness of breath on the slightest exertion, irritating cough, unusual fatigue, and swelling of the ankles. For a few weeks the shortness of breath had been accompanied by severe pain in the chest and upper abdomen.

Family History: Negative for rheumatic disease or heart trouble.

Past Medical History: At five years of age he had had acute rheumatic fever, with recurrences at eleven and sixteen years of age. A heart lesion was diagnosed, but he was very active in high school athletics and played tennis until 1935 at which time he was forced to discontinue because of shortness of breath.

Physical Examination: The patient was cyanotic, dyspneic, and orthopneic. The heart was markedly enlarged both to the right and left. The rhythm was absolutely irregular. There was a harsh murmur at the cardiac apex which was thought to be diastolic in time. There were râles at both lung bases. The liver was enlarged and tender. The vital capacity was 48 per cent.

X-Ray Examination: Revealed a markedly enlarged heart with marked dilatation of the left auricle.

Electrocardiogram: On admission the patient had auricular fibrillation and flutter which changed to slow auricular fibrillation after rest and dehydration.

Course: After several weeks in bed the patient showed considerable improvement, and since his hospital discharge has been quite comfortable on markedly limited activity.

Diagnosis: Rheumatic fever inactive; cardiac hypertrophy and dilatation; mitral stenosis and insufficiency; auricular fibrillation and flutter; and congestive heart failure.

Comment: In this patient, the onset of this disease was typical, and a correct diagnosis was made. The management of his case was neglected after his acute illness had subsided, and he is now a cardiac invalid. No doubt if he had been prevented from participating in competitive athletics he would have had sufficient cardiac reserve to lead a moderately active life.

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GASTRO-ENTEROSTOMY IN THE TREATMENT OF PEPTIC ULCER*

M. MCKIRDIE, M.D., and
JOHN W. DULIN, M. D., Iowa City

Because of the increasing tendency to treat peptic ulcer by radical surgical procedures, both in this country and in foreign clinics, it seemed advisable to review eighty-five patients on whom gastro-enterostomy, a comparatively conservative surgical procedure, had been performed at the University Hospitals during the years 1930 to 1936. The records have been carefully reviewed and the patients followed in an attempt to evaluate the preoperative findings with their subsequent course.

Certain facts in the etiology of peptic ulcer are known; others are suppositions. A peptic ulcer is a circumscribed, clearly defined lesion, which in its acute phase may involve the mucosa only, or as it becomes chronic involves submucosa, muscularis and even adjacent structures. The majority of acute, superficial erosions of the mucosa heal; others become chronic ulcers. The factors which produce the initial necrosis of the mucosa, and those which determine whether an ulcer will heal or become progressive, are unknown. We recognize a group of patients who we say have an ulcer diathesis; that is, a tendency to form ulcers. There is a distinct familial incidence. Focal necrosis, hyperacidity and neurogenic theories are common explanations for the cause of peptic ulcer. After a superficial ulcer develops, the rôle played by the gastric secretions is a most important factor in preventing the ulcer from healing. Improperly masticated foods and irri-

tants, such as alcohol, tobacco and spices, are contributing factors.

Statistics compiled from clinical and postmortem records place the occurrence of peptic ulcer in the adult population at ten to twelve per cent. The incidence of peptic ulcer in our patients corresponds closely with these figures. Age, sex and race follow a fairly uniform pattern. All patients included in this series are of the Caucasian race, although we have seen the occurrence of peptic ulcer in other races. Since the compiling of these figures several negroes have been operated upon in this clinic. As has been pointed out, the occurrence of peptic ulcer is more prevalent in the white race, but its appearance becomes more frequent when members of other races are exposed to the same environmental conditions.

The age varies, depending upon whether the surgeon or the internist sees the patient. The former is more likely to see him after he has had symptoms for a number of years, and after a prolonged trial of medical management has failed to give adequate relief. This is illustrated by our figures which show the greatest incidence to be in the fifth and sixth decades of life (Table I).

TABLE I—AGE OCCURRENCE

1-10 years.....	0 patients
11-20 years.....	0 patients
21-30 years.....	13 patients
31-40 years.....	15 patients
41-50 years.....	20 patients
51-60 years.....	27 patients
61-70 years.....	19 patients
71-80 years.....	4 patients

TABLE II—YEARLY INCIDENCE

July, 1930 to January, 1931.....	5 patients
January, 1931 to January, 1932.....	12 patients
January, 1932 to January, 1933.....	25 patients
January, 1933 to January, 1934.....	17 patients
January, 1934 to January, 1935.....	18 patients
January, 1935 to January, 1936.....	13 patients
January, 1936 to July, 1936.....	9 patients

Our youngest patient was twenty-three years of age and there was a steady rise in each decade until the fifth, from which point the incidence dropped rapidly. The oldest patient was a man seventy-seven years of age. The yearly incidence apparently corresponds with the economic conditions of the nation.

The male predominance is in the ratio of five to one. Whether this occurrence can be explained on the basis of inheritance or the result of different environmental conditions is difficult to say. To our knowledge no study has been made of the incidence of peptic ulcer among women whose occupational habits are similar to those of men.

Of our group of patients, 75 were found to have had some form of treatment prior to admission; 67 had been on medical management with variable responses. Eight patients had been operated upon for an acute perforation, or had had some type of side-tracking operation performed.

*From the Department of General Surgery, State University of Iowa, College of Medicine.

The duration of symptoms varied, the average being nine and one-half years. This illustrates the chronicity of the disease and the ability of some individuals to live with an ulcer and lead a fairly active life. The clinical histories were typical. The intensity and frequency of all symptoms varied, with the exception of abdominal pain which was present in all of the patients. Vomiting of some degree was frequent. Hematemesis and melena were reported by 44 and 54 per cent of the patients respectively; 78 per cent of the patients had varying amounts of gastric retention. In one of our patients gastro-enterostomy was performed as an emergency operation because of massive hemorrhage, uncontrolled by medical measures.

Roentgenographic examination revealed 58 duodenal, 22 gastric, and four combined gastric and duodenal ulcers; 33 of the lesions were pyloric in location. Examinations at six and twenty-four hour intervals were made to estimate the amount of gastric retention. Of 53 patients who had retention, 47 had duodenal ulcers. These diagnoses checked closely with the findings at operation.

The determinations of the gastric acidity were grouped according to the amount of free hydrochloric acid present in a fasting stomach. Fifteen patients had acid values within normal limits, twelve had low acid values, and 32 showed evidence of hyperacidity. We believe that the determination of the free acid value is an important factor in deciding the proper surgical therapy. A high free hydrochloric acid finding indicates that the surgical procedure should not be a gastro-enterostomy.

Only after long and sometimes repeated periods of adequate medical management was surgery recommended. In the majority, gastro-enterostomy was the only procedure employed, although occasionally it was supplemented by excision of the ulcer. Preoperative preparation of the patients was directed toward hydration, anemia and restoration of the tone in the stomach musculature. The choice of anesthesia was a gas-ether combination. A small group was operated upon under spinal or local anesthesia. Eight patients developed pulmonary complications, atelectasis and pneumonia accounting for four each.

A right transrectus incision was used in 75 of the operations. A left transrectus incision was used when it was certain that simple gastro-enterostomy was all that was indicated. At operation 69 ulcers were duodenal, 47 on the anterior wall and twenty-two on the posterior wall. There were sixteen gastric ulcers, fourteen on the lesser cur-

vature. Six jejunal ulcers were noted in patients who had had a previous gastro-enterostomy. All but two of the gastro-enterostomies were of the post-colic type. The jejunum was turned to the left six times more frequently than it was to the right. Suture material was either a combination of absorbable and non-absorbable (50 per cent) or of absorbable alone (40 per cent); in the remaining ten per cent non-absorbable was used throughout. In addition to gastro-enterostomy, four gastric ulcers were excised. In one patient the pylorus was excluded. There were 28 incidental appendectomies and four cholecystectomies. In four patients an antero-enterostomy was also established. One cholecyst-gastrostomy, and four gastro-enterostomies previously constructed were taken down.

In the immediate postoperative period three patients developed acute gastric dilatation, all responding to the usual methods of treatment. Four others experienced distress of short duration, similar in nature to the pain noted preoperatively. Of the pulmonary complications, pneumonia and atelectasis, only one of the former terminated fatally. Three patients developed obstructive symptoms at the gastro-enterostomy site. One of these patients died; a second was operated on again and an ante-colic gastro-enterostomy performed; the third patient responded to conservative management. Wound infections of a major type developed in eight patients, and in five of these complete separation of the wound occurred. Leakage at the anastomotic line with peritonitis developed in four patients; one died. Pyelophlebitis and septicemia were responsible for the third fatality in this series. The postoperative mortality rate for the group was 3.5 per cent.

The results obtained were collected by follow-up letters. All patients had been operated on one to six years before the study was started. Many of the patients, chiefly those with a recurrence of their symptoms, have returned to the hospital for further treatment. Of the 85 patients studied, 75 have been followed. A questionnaire sought information regarding the recurrence of symptoms, their relationship to meals, the relieving agent used, further therapy required and the patient's estimate of the results he had obtained from surgery. These results were classified as good, improved, slightly improved and poor. The patient was symptom free when the results were judged good. Improved patients complained occasionally of a mild recurrence of symptoms, which were easily controlled by dietary management. In slightly improved patients there had been some relief, but the major symptoms were still present

and constant dietary management was necessary. Those with poor results showed no permanent response. The results are shown in Table III.

TABLE III

	Duodenal	Gastric	Combined	
Good	41 (66%)	8 (61.6%)	49 (65.3%)	84%
Improved	11 (17%)	3 (23%)	14 (18.6%)	
Slightly Improved	3 (4%)	0 (0%)	3 (4.0%)	16%
Poor	7 (11%)	2 (15%)	9 (12.0%)	

The three patients with only slight improvement were added to the nine failures for analysis. Six of the twelve patients were under thirty-five years of age. Pyloric obstruction was rare in these patients, only two having evidence of retention on roentgenologic examination. Unfortunately, gastric acidity determinations were only made in four of the twelve patients. However, all of these had high acid values. At operation ten had duodenal ulcers and two had gastric ulcers. Three had previously been operated upon for peptic ulcer; a perforation was closed in one, and gastro-enterostomies were performed in the other two. Each of these latter cases had a marginal ulcer. Eight of the twelve patients returned for examination and a marginal or jejunal ulcer was found. The remaining four reported a recurring ulcer in their follow-up letter. Seven of the eight jejunal ulcers occurred in patients with a primary duodenal ulcer.

The results were reviewed from the standpoint of the amount of gastric acidity and the degree of pyloric obstruction. A distinction has been made between gastric and duodenal ulcers. Table IV shows the number operated upon, those followed and the number of recurrences. Three values in the acid determinations, high, low and normal were made. Division in regard to the presence or absence of stenosis and its relationship to the degree of acidity was made. Patients in whom no acid value determinations were carried out were listed according to the presence or absence of pyloric stenosis.

From these findings it was noted that the optimum conditions for good results following gastro-enterostomy are stenosis with low acidity in duodenal ulcers, and low acid values in gastric ulcers, regardless of the presence or absence of stenosis. In the group of duodenal ulcers in which no acid determinations were made, recurrence was highest where stenosis was absent, while in the gastric lesions stenosis made little difference. Of 62 duodenal ulcer patients, ten (16 per cent) had poor results, while of thirteen gastric ulcer patients, two (15 per cent) failed to obtain relief. Two of the four patients having gastric ulcers excised at the time of gastro-enterostomy, had a recurrence of their symptoms.

In the selection of patients for gastro-enterostomy for peptic ulcer specific criteria should be kept clearly in mind. Our results show that the three most important factors are the location of the ulcer, the degree of gastric acidity, and the presence or absence of pyloric obstruction. No one of these factors can be held responsible for unsatisfactory results. In duodenal ulcers the presence or absence of stenosis is the more important, while in gastric ulcers the degree of acidity is the more significant factor.

At the time of discharge the patients are instructed to remain on a permanently modified ulcer diet. This diet should be outlined in writing and particular attention should be paid to giving patients a choice in selecting their foods, since ulcer diets are monotonous. The control of nervous tension is attempted; small doses of phenobarbital should be prescribed when necessary. Tobacco and alcohol in all forms are forbidden. It should be impressed on the patient that the ulcer diathesis is still present and the likelihood of recurrence is great.

SUMMARY

1. Carefully selected patients with peptic ulcers

TABLE IV

Duodenal Ulcer					Gastric Ulcer				
	Total Cases	Follow Cases	Recurrence		Total Cases	Follow Cases	Recurrence		
Acidity									
High	25	22	1	(4.5%)	7	6	2	(33%)	
Normal	10	8	1	(12.5%)	5	4	0	(0%)	
Low	10	8	0	(0.0%)	2	1	0	(0%)	
Not Determined	24	24	8	(33.3%)	2	2	0	(0%)	
Totals	69	62	10	(16.0%)	16	13	2	(15%)	
Stenosis									
Present	57	51	7	(13%)	10	9	1	(10%)	
Absent	12	11	3	(27%)	6	4	1	(25%)	
Stenosis With									
Low Acidity	9	7	0	(0%)	0	0	0	(0%)	
Normal Acidity	9	8	1	(12%)	4	3	0	(0%)	
High Acidity	19	17	1	(6%)	5	5	1	(20%)	
No Stenosis With									
Low Acidity	1	1	0	(0%)	2	1	0	(0%)	
Normal Acidity	0	0	0	(0%)	1	1	0	(0%)	
High Acidity	6	5	0	(0%)	2	1	1	(100%)	
No Acid Values									
With Stenosis	20	19	5	(25%)	1	1	0	(0%)	
No Stenosis	5	5	3	(60%)	1	1	0	(0%)	

may be successfully treated surgically by gastro-enterostomy. (Good results in 85 per cent.)

2. Gastro-enterostomy is a comparatively simple operation with a low mortality rate. (3.5 per cent in our experience.)

3. Adequate preoperative and postoperative care is indicated in all patients.

4. Minor variations in technic for posterior gastro-enterostomy have no effect on the incidence of recurrence.

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THE RECORD LIBRARIAN, AN AID TO DOCTORS

LEONA J. BOHACH, M.A., R.R.L.

Iowa Methodist Hospital, Des Moines, Iowa

Each year, in hospitals all over this country, there are literally tons of paper, containing information about the sick, stored away in record rooms, attics and buildings. A large amount of this paper is never referred to again except to be moved or dusted. Superintendents get grey hair with the constant problem of storage space, doctors often look upon records as a basis of annoyance, and nurses have difficulty in keeping their notes up to date. Yet in spite of all this it is estimated that over \$8,000,000 is spent each year to provide this service in hospitals in the United States.¹ Is this expense necessary? Do the physicians use these records enough to warrant the constant nagging of the record keeper?

When one reads the history of medicine he quickly becomes aware of the change from simple forms of practice to the more complex. The difficulties of modern life, especially the increased concentration of the population in cities, have brought about a change in the relationship of the physician to his patient. In the early days,

the physician led a comparatively simple life. He was the intimate friend and advisor of the patient. He knew the family and its idiosyncrasies. "His sick rooms were secular confessionals in which he practiced a rare priesthood. His deficiencies were many, but, according to his lights, he was an apostle of the art of medicine."² This regime has largely disappeared and the science of medicine has advanced and changed so that many symptoms and conditions, whose recognition in the older days depended on the sensitivity of the doctor, now are measured and discovered by precise instruments such as the x-ray, the electrocardiograph, the basal metabolism machine, and numerous laboratory procedures. In order to make the results accurate and easily available the written record becomes necessary. From an economic standpoint the physician today is forced to have a larger circle of patients in order to maintain his standard of living. This precludes the possibility of relying on the memory in treating the sick; hence the recorded notes. The patient of today may be the patient of next month or two years from now. If so, the physician cannot be expected to keep the details in mind, and without a record of the past illnesses, much repetition is necessary which entails expense and a waste of time for an already overworked doctor.

Although the medical record itself is not new, (the history of written records may be traced back more than two thousand years³) many doctors are not clerically minded and the notes have not been systematic or worthwhile. In an attempt to remedy this, hospitals have taken up the burden of keeping records for the physician and surgeon. In order to establish a uniform method of keeping them to insure a maximum efficiency, the hospital standardization program sponsored by the American College of Surgeons was set up in 1918. Since that time one of the four points in the minimum standards of hospitals has been "That accurate and complete medical records be written for all patients and filed in an accessible manner in the hospitals, a complete medical record being one which includes identification data; complaint; personal and family history; history of present illness; physical examination; special examinations, such as consultations, clinical, laboratory, x-ray and other examinations; provisional or working diagnosis; medical or surgical treatment; gross and microscopical pathological findings; progress notes; final diagnosis; condition on discharge; follow-up and, in case of death, autopsy findings."⁴

All this tends to make the medical history valuable not only for standardized hospitals but from the standpoint of the patient, the hospital, the

community and the doctor.⁵ We are concerned here merely with the standpoint of the medical man.

The patient of today may become the patient of another doctor tomorrow. With the development of specialization it is not uncommon for the sick to be seen by three or four doctors. If the history is kept, the physician and surgeon will be greatly assisted and more intelligent treatment may be administered. The patient's record protects the physician in his practice. Action for malpractice is not uncommon and the medical man needs all the means of defense available. Here the chart serves a very useful purpose since it is written at the time of examination without thought of future legal use in mind. "Juries pay very close attention to facts outlined in a patient's medical record, because the record gives the jury an absolutely unbiased statement regarding the patient's injury, condition, and treatment . . . the record gives the true and uncolored picture."⁶ Furthermore, when the doctor is called to court as an expert medical witness, he may refresh his memory, or at least assure himself that he really knows the facts, by studying the chart. What better place is there to get this information than the record office? There have been instances in which the surgeon was held guilty of malpractice because he failed to leave a record of the operative procedure and the patient perhaps suffered because of it.⁷

Somewhere in the soul of every progressive medical man is the desire to write a paper, publish an article, prove some pet theory, and work out some problem. Since hospital records are the best available source of material it naturally follows that they will be used. The majority of doctors hate to write, but the act of arranging and recording the data obtained brings to mind the value of some points which otherwise might be overlooked. Hospital directors are beginning to realize the value of such objectives and they are providing better rooms to which doctors may go, comfortable chairs and long tables where they may spread out their material and work without interruption. Many times the room selected is the record office which, because of its close proximity to the source of material, is ideal for study.

The physician is stimulated to keep up with the medical world through records. If his methods are inadequate or out of date the record tells the story, and he cannot expect to stay in line with his fellow workers unless he mends his ways. The checking of the hospital on its members is an outgrowth of record keeping and it is playing an important part in improving the professional work of the hospital. This is expressed well by Dr.

Arthur Steindler, professor of orthopedic surgery at the State University of Iowa:

"It is rather commonplace to say that a case record reflects the sum total of the medical skill expended by the surgeon upon a particular case. In one instance it is a testimonial of a clear and observing eye, of a keen and orderly mind, of a wide range of information; it is a triumph of the power of inductive analysis and of deductive reasoning; a monument of experience, of knowledge and of practicality. In another case it represents a meager collection of incoherent and often irrelevant facts which are poorly arranged, poorly coordinated, and not infrequently poorly expressed. From such an arid field little can be gleaned for purposes of interpretation and of conclusion.

"It is obvious that the clinical record embraces the entire ingenuity of the surgeon's approach to the patient, reflects his extensive background of general medical knowledge, and projects into the foreground his faculties of observation, his discernment between the essential and the irrelevant, and his powers of intuition and deduction."⁸

Cases can be cited where a doctor was suspended from the staff and denied the right to bring patients to the institution because he failed to complete his charts.⁹

Since it is morally and ethically impossible to use the human body for research purposes, the next best procedure is to work with animals or to study the records of those who had been sick with the same condition. Many new methods and ideas have resulted from careful study of scientific records kept by colleagues on their patients. Some of the best papers published in medical journals are the result of studies made in this way.

The development and increased use of the medical histories of patients have brought into being a new group of workers in the hospital field, known as the "record librarian". This group, although not officially recognized as a profession until 1928, is becoming an important factor in hospital standardization. It has established a standard of education and training, and a registry to assure the hospital administrator and the doctor that they are dealing with a person fitted for her position. In order to qualify for training the young lady must be at least twenty-one years of age, have had at least two years of college and a knowledge of shorthand and typing. There are nine approved schools in the United States where she may take her training and the curriculum consists of courses in anatomy, medical ethics, theory of record keeping and medical terminology. She learns through practice as well as theory, to check and assemble charts, make case summaries, file histories, cross-index diagnoses, operations and

physicians' files according to various systems. She becomes efficient in making out daily, monthly and annual reports, takes dictation in all branches of medical record making, knows the fundamentals of library methods, and the compiling of bibliographies. By the time she is ready to finish her course, she knows the legal aspect of records, how to conduct herself in a court room, and what information she may or may not give out to lawyers, insurance men, newspaper reporters and the hundreds of other persons who ask questions. Upon the completion of the training course, she takes a written examination prepared and sponsored by a national board. If she passes the examination she is awarded the right to place an R.R.L. (Registered Record Librarian) after her name, indicating that she is competent in all phases of administration of a record department.¹⁰

Whether the hospital has twenty-five or a thousand beds the duties of the record librarian are essentially the same. She is responsible for planning, setting up, organizing and managing an efficient records department; encouraging in every way possible the obtaining of good records; cooperating with other departments in the matter of charts; assembling, filing and cross-indexing medical records; preparing monthly, annual and other statistical reports; making group studies; and correlating the records department and the medical library. If the hospital is large her work becomes more that of a supervisor, while in an institution of less than one hundred beds she may have other duties besides the record keeping.

To the majority of doctors she is referred to as "the pest," a person who always seems to be springing out of nowhere to lure him into dictating operative records, or to sign the discharge note which, although he may deny it vigorously, makes him responsible for that particular chart. It is true the completion of records is her main responsibility and a great deal of time is consumed in waiting for doctors to ask them to assist in bringing down the number of incomplete histories, but the physician has the right to ask much in return. A doctor may examine the records at any time he wishes. He may have forgotten some surgical procedure, a blood examination, or physical examination which his office files fail to give him. It is not uncommon for the record librarian to receive a call to look up Mrs. A's chart and report what the white count was, or which ovary was removed.

The patient may consult a second physician and since the memory of the sick cannot be relied upon the hospital chart needs to be consulted to gain a clear picture of the case. Many a patient has been spared a second appendectomy by the existence of

a medical history in a hospital many miles away. This is no reflection on the surgeon treating the case. He has no way of knowing what may have been removed or left in an abdomen through the incision. He may have his ideas but the scar reveals no labels. Some doctors object to this practice and refuse to allow other men who "stole their patients" to see the charts. The record is hospital property, maintained for the benefit of the patient and if a second physician wishes the information it should be given to him.¹¹

In order to dispel the fear which many members of the medical profession have, that the keeper of records will give out the wrong information, may I refer you to the pledge taken by every record librarian of which the third paragraph reads as follows: "Moreover, I pledge myself to give out no information concerning a patient from any clinical record placed in my charge, or from any other source, to any person whatsoever, except upon the order from the Chief Executive Officer of the Institution which I am serving; and to avoid all commercialization of my work."¹²

In the last ten years there has been a steady increase in the number of insurance policies issued, especially health and accident. With this growth of desire for security there has developed the task of filling out questionnaires, making abstracts, and talking to claim adjusters before the claim may be paid and the doctor's bill settled. The record librarian is trained to handle such cases and is ready to assist the doctor.

When a doctor leaves on his vacation he often asks a colleague to look after his patients. Sometimes an emergency arises and the office notes are too scant for the substitute to understand. If that patient has a hospital record a visit to the record room may help the doctor out of the difficulty. The record librarian is ready and willing to aid the staff doctors in carrying on case studies. When data are to be compiled she knows where the material they want may be found. She can draw out the charts from the files and assist in making out bibliographies. If there is a medical library in connection with the records office she is able to furnish data from current literature and selected study.

No standard hospital exists today without a definite staff organization and whether it is simple or complex it always has at least two committees, program and records. In connection with the functioning of these committees the record librarian plays a part. The medical records committee is composed of men appointed by the president of the staff. Its responsibility is to see that accurate and complete medical rec-

ords are secured for every patient treated in the hospital, for the purposes of appraising them and making a report to the medical staff at each meeting. The record librarian may check the charts and prepare them for the files, but she cannot judge them from the clinical or scientific standpoint. She assists by bringing out the charts and helping the committee in every way possible to secure the desired ends.

A good program is essential in maintaining the interest and attendance at staff meetings. Again the record librarian may be an important aid, and do much work. Because of her familiarity with all records she always has somewhere in the back of her mind an interesting case which the doctor in charge may be too modest to mention, or a group of cases which may prove or disprove some point made in a leading medical journal sometime before. Since she prepares the monthly, annual and periodic statistical reports she can tell which services made the greatest gains in a given time, the mortality rate as compared with those of other hospitals, etc. Working under the direction of the committee members, she can prepare the necessary data for important studies to be given before the meeting. No matter how small the hospital is, the records department can give some important statistics for this purpose.

A record librarian may be of help to the physician in many other ways. She can give him a list of the patients he had in that hospital over a given period of time, what services they were on and the diagnoses. If the doctor wants the list in order to send out bills she can add the addresses as well. Sometimes a doctor is called in consultation or goes to see a patient in the hospital, and forgets to make a notation in his little black book; later he finds his memory has played a trick on him and he cannot complete his office files. The record librarian will have this information.

Since doctors dislike writing, every effort is made to assist them. A record librarian is always willing to take dictation; in large hospitals dictaphones are used which eliminates waiting for a stenographer when time is a factor. In small hospitals the record librarian may make rounds with the physician, obtaining his notes while they are still fresh in his mind. If he so desires, she may call his office and obtain a copy of the past history; she herself will have available the operative report and other present history data, thus supplying both places with accurate and sufficient records.

Recently many doctors have changed their systems of record keeping in their offices. The rec-

ord librarian has proved helpful in cases where her assistance was sought. Since she has been taught to establish record departments, and has information on various systems she is able to point out the good and bad features of each and if necessary set up the desired one in a reasonable length of time. This procedure saves both the doctor and office girl much study and disappointment before they establish the new system.

This discussion does not exhaust the subject but it may serve to introduce a few ideas which have not been emphasized before in the keeping of records. From the standpoint of the patient, the doctor and the community, the chart is indispensable and the record librarians are prepared to aid in every way to make the records worthwhile. Perhaps with the continued interest and cooperation of the doctors and medical record librarians the tons of charts accumulated at a cost of \$8,000,000 a year will become an asset rather than a liability.

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THE NERVOUS HEART

BEN F. WOLVERTON, M.D., Cedar Rapids

It is fair to say that the recognition and treatment of functional heart conditions which may be grouped under the term "nervous heart" are fully as difficult as the diagnosis and management of organic heart disease. Probably no condition calls for greater skill or nicer judgment, and the exercise of both the science and art of medicine, than the functional cardiac group. Although the patient's life is seldom in danger, his comfort, happiness and usefulness certainly are, and the saving of these is a most worthy objective. In this group may be included all those patients presenting symptoms or signs suggestive of heart

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disease, in whom no evidence of structural change in the heart can be found. In addition to these purely functional cases, one must remember that patients with organic heart disease frequently have superimposed functional states which should be regarded as a complication, because they modify the clinical picture and the results of treatment.

It is impossible to make a satisfactory classification of functional heart disorders. The cases present an endless variety, each one modified by the constitutional type, temperament and psychologic background of the individual, the circumstances under which the symptoms have developed, the presence or absence of disease, and the patient's race, sex and age. However, one fairly well-defined syndrome stands out more distinctly than any other single group and may therefore be considered separately; namely, neurocirculatory asthenia. The others cannot readily be separated into distinct types and for convenience may be considered according to the presenting symptom or sign, which may be single or in various combinations with others.

Neurocirculatory asthenia was first described during the Civil War. Later essentially the same syndrome was recognized among civilians. During the World War, large numbers of soldiers were affected. Several students of the condition have each coined a new term for it. Thus it has been called soldier's heart, irritable heart, disordered action of the heart, effort syndrome, and neurocirculatory asthenia. The latter term would seem the most suitable since it implies a weakness of adaptation of the nervous and circulatory systems to conditions imposed upon the organism. The threshold of sensation of these subjects is low, having been reduced by stress of military or civil life beyond the capacity of the individual. While the majority of persons exhibiting neurocirculatory asthenia are of a hyposthenic, visceroptotic, slender type, more rugged individuals succumb if the strain is sufficiently intense or prolonged. It would appear that every neurocirculatory system has its breaking point, the actual onset of neurocirculatory asthenia being determined by the relation between the degree and duration of the strain, and the ability of the individual to withstand it. Thus, during the World War, many men developed the condition when called for examination by the draft boards, others in training camps, still others under conditions of combat. It was common for seasoned veterans finally to crack under conditions no different from those experienced almost daily for years. Evidently the principle of "the last

straw" applies here. Neurocirculatory asthenia in civil life is essentially the same, except that the type of strain applied is of a different character. In either case it would seem that the quality, as well as the quantity, of stress applied is important in determining the breaking point.

The symptoms are essentially those of instability of the nervous and circulatory systems. Relatively slight exertion, or even emotion alone causes breathlessness, palpitation, tremulousness, sweating, giddiness, and often pain in the chest. Since the symptoms resemble those resulting from strenuous exertion in normal persons, the condition has been termed "effort syndrome." It differs from the normal response to effort, however, in that it continues long after the exertion has ceased, it is accompanied by obvious anxiety, if not actual terror, and the relative prominence of the individual symptoms and signs is often disproportionate. Thus, the dyspnea may be out of proportion to the heart rate, or vice versa. The whole picture has a spurious quality. Not infrequently the anxiety induces over breathing to such a degree that alkalosis tetany results, and the patient complains of stiffness about the mouth, numbness and stiffness of the hands and feet. When not exhibiting the effort syndrome, these patients are nervous but rather sluggish; their hands and feet are cold, moist and often slightly cyanotic. They tire easily, lack self-confidence, and have difficulty in holding an average job. There may be a tremor and increased pulse pressure; dermatographia is marked. A soft systolic murmur may be heard at the apex or in the second left interspace.

The most likely errors in diagnosis are those of calling the condition valvular heart disease or thyrotoxicosis. The murmur, if one is present, is a short soft blow in early systole, or there may be only a blurring of the first sound. The heart is not enlarged or abnormal in outline. There is no history of rheumatic infection. There is no enlargement of the liver or dependent edema. It may be difficult to rule out hyperthyroidism. The easy fatigue, if combined with tachycardia, moist hands, increased pulse pressure and slight tremor, may be very deceptive, particularly if a single metabolism test gives a high reading. However, patients with neurocirculatory asthenia do not lose weight on an adequate diet, they are intolerant to cold rather than heat, the tachycardia subsides during sleep, and metabolic readings, if repeated until the patient has become accustomed to the test and is in truly basal condition, prove to be normal. The treatment of neurocirculatory asthenia does not

differ, except in detail, from that of the other functional cardiac states, and will be discussed with them.

Functional cardiac states other than neurocirculatory asthenia form a heterogeneous group. In some cases, the cardiac manifestations are only one phase of a well-established neurosis, such as neurasthenia, hypochondria, hysteria, or anxiety neurosis in which the anxiety referable to the heart is only a part of the anxiety state. Far more common are anxiety neuroses in which the suspicion and fear of heart disease seem to be the sole or principal basis for the neurosis. It must not be forgotten that cardiac complaints may be an expression of a psychosis, such as involutional melancholia. Finally, patients with other diseases such as thyrotoxicosis, pulmonary tuberculosis, anemia and focal infection, not infrequently complain chiefly, if not solely, of cardiac symptoms. The symptoms common to all groups are subject to variations in degree and may occur singly or in various combinations.

Palpitation may consist of simple heart consciousness. The heart beat may be normal in rate, force and rhythm, yet the patient may complain that his heart pounds or beats too fast. Frequently the pulsation of the abdominal aorta also is noticed and is considered an indication of heart disease. The heart consciousness is present especially after an individual retires and while he is otherwise at rest, less so when he is active. Frequently the patient has never been aware of his heart beat until he notices premature beats. Many persons have frequent premature beats without their knowledge, until they or someone else finds them on feeling the pulse. More often they produce a "flopping" sensation and they may cause marked distress. Rarely they cause actual pain. They too are conspicuously present during rest periods, and tend to disappear with exercise and emotion. Since it is a common belief that all cardiac irregularities indicate heart disease, the discovery of premature beats forms the basis for many cardiac neuroses of the anxiety type. It is usually assumed that the heart "skips" a beat instead of beating prematurely, suggesting the possibility that death would occur if the heart failed to resume beating. Sinus arrhythmia is occasionally a source of anxiety when it is accidentally discovered. Paroxysmal tachycardia and paroxysmal auricular fibrillation are always alarming to the patient the first time they occur and naturally are assumed to be due to disease of the heart. The sudden onset of these arrhythmias, if the rate is high, may give rise to pain suggestive of coronary artery disease.

Pain occurring in the functional cardiac group

usually is not difficult to distinguish from that due to angina pectoris, coronary thrombosis, aortitis and pericarditis. It is usually a dull ache in the precordial area or sharp twinges near the apical region. In either case, the patient's expression belies the alleged "terrible" severity of the pain. It is totally unrelated to exertion, unless it is actually relieved by it. Any pain in the general region of the heart is commonly suspected by the patient as being due to heart disease, while it may actually arise from the pleura, intercostal nerves, intercostal muscles, spine or abdomen; or the pains may be transitory and have no discoverable cause. The presence of tenderness over the chest wall in the region of the pain argues strongly against organic heart disease as its cause; it should not be confused with the paresthesia which may accompany angina pectoris, the latter being elicited by lightly stroking the skin, whereas in tenderness of functional origin the discomfort is increased by deep pressure. There are occasional cases in which it is necessary to reserve judgment as to the functional or organic origin of pain in the precordial area. In such an instance, however, the term pseudo-angina should never be used, since angina pectoris as a symptom of heart disease is either present or it is not. Reference of the pain to the shoulder or the arm is by no means conclusive evidence that the pain is not functional. In general, the consistent relation of exertion to the appearance of pain is the most reliable point in the history indicating an organic cardiac cause.

Aside from the ease with which shortness of breath is produced in neurocirculatory asthenia, true dyspnea on slight exertion is not usually seen in functional cardiac states, although so-called shortness of breath is frequently complained of. What the patient calls shortness of breath is actually a frequent desire to draw a long breath, which never seems to be fully satisfying. He feels as if the breath does not "hit bottom." The sensation is most marked at rest and is increased by nervousness, and leads him to frequent sighing. It is actually relieved by exercise. Other frequent symptoms are faintness, a "gone" or "sinking" sensation, and giddiness which is usually called dizziness. These symptoms merely indicate the instability of the vasomotor system.

A fact that cannot be too strongly emphasized is that functional states, chiefly anxiety neuroses, frequently are superimposed on organic heart disease of all types and degrees. When such is the case the symptoms are exaggerated out of proportion to the actual lesion. In fact, the course of the disease may be adversely affected if the anxiety state is not recognized and cor-

rected. Such a condition may arise in a number of ways. The patient may misunderstand or misinterpret a statement made by the physician about his case, leading him to believe that it is more serious than is true. A caller may make a thoughtless reference to similar cases which did not fare well. The patient may read of cardiac deaths in the newspaper, particularly of friends and acquaintances. A physician may have over-emphasized the importance of his lesion and given him excessively cautious advice. Particularly to be deplored in hypertensive cases is the taking of frequent blood pressure readings with an attitude of concern, and informing the patient of the results. A valvular lesion should never be referred to as a "leaky" valve; the patient visualizes an escape of blood from the heart into some unknown space. The patient may be worried over his hospital bill, the prospect of losing his job, what is to become of his family when he dies, and who will be his wife's next husband. All of these fears augment his symptoms, both by adding a functional state to the organic lesion, and by interfering with rest, sleep and eating. His nervous tension adds to the work of the heart, thereby hastening the advent of failure, or interfering with recovery if failure is present.

A functional state superimposed on an organic cardiac basis should be looked for in each case when it first comes under observation and constantly thereafter. It may be suspected if the patient's attitude reflects greater anxiety than his cardiac condition justifies, if he is unduly restless, or if he is depressed. The failure of a patient to avail himself of the amount of activity permitted by the physician indicates that he is more concerned about himself than he should be. With increasing experience one develops a sense of what symptomatology and reduction of functional capacity may reasonably be expected with any given cardiac lesion, and if these seem excessive, an anxiety state should be suspected. It is not likely to be overlooked if it is constantly borne in mind.

The decision as to whether a patient has organic heart disease or a functional cardiac state is based on established criteria which need be only enumerated here:

1. Demonstrable cardiac enlargement.
2. Convincing history of anginal pain.
3. Distinctive heart murmurs.
4. Arrhythmias usually due to organic heart disease.
5. Abnormal x-ray findings.
6. Evidence of cardiac failure.
7. Electrocardiographic evidence.

8. The presence of an etiologic factor.

One or more of these findings must be present before a diagnosis of organic heart disease can be made.

The treatment of functional cardiac states begins the moment the patient consults the physician. The doctor's attitude must reflect understanding, sympathy, honesty and sincerity. The patient must acquire complete confidence in the physician's ability to determine with certainty whether or not organic heart disease is present. The history must be thorough and unhurried. Much can be learned or surmised about the patient as he tells his story. The entire examination must be sufficiently careful and complete not only to permit a diagnosis but also to convince the patient that the diagnosis is correct. Even if x-ray and electrocardiographic studies are not considered necessary for a diagnosis, they are necessary if the patient expects them to be carried out and is likely to remain in doubt without them.

Having satisfied himself that no organic heart disease exists, the physician must convince the patient beyond question that this is true. There must be no hedging or attitude of uncertainty. One of the most difficult tasks is to explain how pronounced cardiac symptoms can be produced in the absence of heart disease. My own method, which might not be approved by a psychiatrist, is to explain that an individual may vary in his sensitiveness to a given stimulus under different conditions, citing as examples the difference in appreciation of pain when a thumb is bruised in an exciting football game, when it is struck accidentally with a hammer under normal conditions, and when it is bruised to the same degree if it were already inflamed. The effect of the patient's fear and anxiety is likened to the soreness of the thumb in that it makes him aware of sensations not noticeable under normal conditions, and causes him to interpret them as pain or other disagreeable sensations. He is further told that once he has accepted without reservation the belief that his heart is sound, his threshold to sensation will return gradually to a normal level and his symptoms will disappear, and that, in the interval, he must learn to scorn any symptoms that recur. Many patients need no further reassurance, but others have to be reconvinced from time to time. They are urged to increase their activity as rapidly as freedom from symptoms permits. They are not allowed to believe that their hearts are "weak" and are not given any cardiac drugs. If mild sedatives are given to help them through the period of adjustment, their purpose is carefully explained, so that they will not conclude

that they must be ill, since they are given medicine.

Patients with neurocirculatory asthenia are usually more resistant to treatment than those with cardiac neuroses based on fear and anxiety. The method is similar to that already outlined, except that they are urged to increase their activities slowly rather than rapidly, to avoid discouragement when the effort syndrome recurs under too strenuous exertion. Patients with fixed and complex neuroses need psychiatric assistance. In all cases every effort should be made to improve the general health by eliminating definite foci of infection, correcting anemia, improving nutrition and other appropriate measures. Social, economic and domestic problems should be uncovered and removed if possible. If the conditions cannot be remedied, the patient must adjust himself to them as well as possible under the guidance and encouragement of the physician. The diagnosis and treatment of the functional cardiac disorders constitute a difficult, but, on the whole, hopeful problem. The opportunity of improving the condition compares favorably with that in the care of organic heart disease.

A SIMPLE FOOT PLATE FOR USE IN SKIN TRACTION ON THE LOWER EXTREMITIES

LEWIS M. OVERTON, M.D., Des Moines

In the use of skin traction on the lower extremities, there are several factors to be considered



Fig. 1. Showing the construction of the plate.

in making the traction more comfortable and more efficient. A satisfactory foot plate is an essential aid in accomplishing this end.

The plate illustrated in this report has been devised by the author and used with satisfaction. It is a simple appliance which can be made in a few minutes with sixteen to eighteen gauge aluminum, two buckles and a small hook. The plate



Fig. 2. Showing the plate in use.

should be three inches longer than the foot and wide enough to allow for a flange of one and one-half inches on each side, and still be wide enough to prevent pressure over the malleoli. The point for attaching the pulley rope is in the center of the plate laterally, and two and one-half inches from the bottom. The buckles, to which the adhesive traction straps are to be attached, are placed one inch above this point. These buckles allow for adjustment in case some slipping of the adhesive on the skin may occur. The splint is lined with table felt to prevent irritation of the foot.

When the splint is fastened to the foot and the traction applied, the foot will be pulled up into the neutral position with the heel free of the bed. This mechanism allows the patient to move the foot up and down freely, but when the foot is resting in the neutral position, it is at a right angle to the leg. The flange on each side prevents the foot from sliding off the plate and rolling out into the external rotation.

CLINICAL NOTES FROM THE COLLEGE OF MEDICINE Hospital Staff Meeting, January 16, 1940

ARTERIAL HYPOTENSION

HORACE M. KORNS, M.D., Iowa City
Department of Internal Medicine
State University of Iowa

In the broad sense, arterial hypotension is said to be present whenever, under properly controlled conditions, the systolic and diastolic pressures are persistently below the accepted limits of normal, as established by observations on many thousands of normal subjects. These limits are about 110 and 60 millimeters, respectively, and approximately three per cent of all healthy adults have

pressures as low as this, or lower.¹ Several years ago, during the course of an attempt to ascertain the incidence of a significant difference between right and left brachial pressures among normal subjects, Guinand and the author² measured the blood pressure of 1,000 university students, and were struck with the relatively frequent occurrence, especially in young women, of systolic pressures between 90 and 100 millimeters. The majority of these people are, both subjectively and objectively, perfectly normal in every way, and actuarial experience indicates that their life expectancy exceeds the average. There is, therefore, no reason why we should attach any significance whatever, either among ourselves or in discussing the subject of blood pressure with patients, to symptomless hypotension. Actually, if it were not for the fact that some patients do have symptoms which can be justifiably ascribed to hypotension no more pronounced than that often encountered in normal subjects, one might think that the lower limit for normal blood pressure had been placed at too high a level. With respect to the fundamental cause of hypotension, the theories are many, the facts few. Either an hereditary tendency, or, in the syndrome of essential hypotension, a form of constitutional inferiority is probably the most important factor.

ESSENTIAL HYPOTENSION

So-called essential hypotension is a syndrome consisting of headache, vertigo, inability to concentrate, mental and physical fatigability, palpitation, shortness of breath on exertion, and vague digestive disturbances. The principal objective manifestation is persistent hypotension, which is the cause of all the symptoms. Women are afflicted more often than men. The patients are usually from twenty to forty years of age, of asthenic habitus, and are likely to have enteroptosis. The condition is not to be confused with psychoneurosis (although such patients may also become neurotic), and should not be mistaken for neurocirculatory asthenia, in which precordial pain is a prominent symptom and hypotension does not occur. In the differential diagnosis one might also consider cerebral lesions of various kinds, disease of the heart or alimentary tract, and debilitating diseases, such as tuberculosis, diabetes mellitus, and myasthenia gravis, but the means by which these possibilities can be excluded are too obvious to require detailed discussion.

With regard to treatment there is not much to be said. If the patient is undernourished, it would be advantageous to have him gain weight, but this is often very difficult to accomplish. If he

has splanchnoptosis, an abdominal binder may help. Cold showers would be expected to exert a favorable effect on the vasomotor tone. With the possible exception of benzedrine and parendrine, which will be discussed later, no drug has any appreciable ameliorating effect. Above all, it is extremely important not to tell the patient that he has low blood pressure. As Dr. W. D. Stroud³ expressed it, in his presidential address at the last meeting of the American Heart Association, "Usually, people with low blood pressure can be patted on the back and told that God has been very kind to them. Probably they do not accomplish as much as the high-pressured individuals, but they are wonderful from the standpoint of the physician. They never feel quite right, they are always coming back to him, and they live forever."

SPONTANEOUS ORTHOSTATIC HYPOTENSION

The first inklings of this interesting syndrome are to be found in Laubry's⁴ brief mention, in 1924, of a patient who was referred to him in 1891 by Babinski. He was a man, forty-eight years of age, who suffered from vertigo and astasia-abasia, but no evidence of organic disease of the central nervous system could be found. Quite by accident, Babinski discovered that the patient's arterial pressure was unusually low, whereupon he sent him to Laubry, whose careful observations demonstrated beyond question the orthostatic nature of the hypotension. In 1925, Bradbury and Eggleston⁵ published their definitive study of the syndrome, and subsequent communications by numerous observers have brought the total number of reported cases to approximately fifty.

The outstanding feature of orthostatic hypotension is the fact that the blood pressure falls, often to shock levels, when the patient assumes the erect posture, with the result that syncope may supervene. This is most likely to happen when the patient first gets out of bed in the morning, but may occur at any time. An important characteristic of this form of syncope, and one which helps to differentiate it from other varieties, is that the patient regains consciousness immediately after he falls. In many cases of orthostatic hypotension the heart rate is almost wholly unresponsive to changes in posture and blood pressure. The majority of patients are forty years of age or older. They have a moderate degree of generalized arteriosclerosis, and often an abnormally high blood pressure when they are lying down. They are likely to be irritable and hard to get along with. There is a tendency to anhidrosis, which may become complete; the basal metabolic rate is from ten to twenty per cent below normal; neurologic examination may reveal slight and

rather indefinite abnormalities; the urea nitrogen content of the blood touches the upper limits of normal; there is usually a slight secondary anemia; the patient appears younger than he really is, his skin and mucous membranes are pale; he loses his libido and may become impotent; and he has nocturnal diuresis. All of the symptoms are greatly aggravated by warm weather; very hot, humid days make the patient so wretched that he is forced to live in the cellar or seek a cooler climate.

Among the alternatives which must be considered in the differential diagnosis are syncope of cardiac and central origin, syncope resulting from hypersensitivity of the carotid sinus, epilepsy, brain tumor, disease of the equilibratory apparatus, Addison's disease, paroxysmal spontaneous hypoglycemia, exhaustion states and heat stroke.

Cardiac syncope, whether caused by transitory auriculoventricular block, sinus bradycardia, ventricular fibrillation, extreme tachycardia, or total asystole, should offer no particular difficulty, for unaided clinical observation of the behavior of the heart during the attack will usually disclose any abnormality of its mechanism. Furthermore, syncope resulting from orthostatic hypotension never occurs except when the patient changes from the recumbent to the sitting or standing posture, whereas cardiac and other forms of syncope are not necessarily related to changes in posture.

Brain tumor, disease of the cerebral arteries, and lesions encroaching on the medulla, to which syncope may be secondary, can usually be detected by their other manifestations and by special diagnostic procedures, such as ventriculography and encephalography.

Vasovagal syncope caused by abnormal sensitivity of the carotid sinus is characterized by a profound fall of blood pressure which is responsible for the loss of consciousness. The precipitating factors vary; in some cases none can be found, but in others a quick turn of the head or the wearing of a tight collar will produce an attack. The generalized convulsion which frequently accompanies the syncope helps to differentiate it from that caused by primary orthostatic hypotension, and, once the possibility is considered, it will be found that the symptoms can be reproduced by pressure on the carotid sinus. In orthostatic hypotension the sinus is not primarily at fault, and manipulation of this region will not initiate an attack.

The syncope of orthostatic hypotension is easily distinguished from epilepsy, because it is not attended with convulsions, biting of the tongue, or foaming at the mouth; it never occurs while

the patient is asleep, and is not preceded by a true aura or followed by somnolence, mental confusion or headache.

Although a patient with disease of his equilibratory apparatus, such as Ménière's syndrome or chronic labyrinthitis, may become so dizzy that he falls to the ground, he does not actually lose consciousness, and therefore cannot be said to have syncope. In addition, the associated deafness and tinnitus, together with the fact that the blood pressure does not fall, exclude any possibility of orthostatic hypotension.

Clinically, the differentiation from Addison's disease may offer some difficulty, especially if the patient naturally has a dark skin, and also because there is the possibility that this disease may occur without the pigmentary changes in the skin and mucous membranes which are ordinarily so characteristic. Most patients with Addison's disease have a mild chronic hypotension, and some of them are also subject to a varying degree of secondary orthostatic hypotension. Crucial evidence may be obtained by keeping the patient on a salt-free diet which is rich in potassium for a period of several weeks. This should not be done unless the patient can be watched closely at all times; if he has Addison's disease, such a regimen will almost certainly precipitate a crisis, and I need not emphasize the fact that treatment of an Addisonian crisis must be prompt and thorough if the patient's life is to be saved. The patient with orthostatic hypotension tolerates a salt-free, high-potassium diet indefinitely without aggravation of his symptoms.

Some of the manifestations of orthostatic hypotension, namely, weakness and faintness, tremor, irritability, anxiety and pallor, are also characteristic of spontaneous hypoglycemia, but the hunger and profuse sweating of hypoglycemia are absent in hypotension, and in the latter condition the symptoms are never relieved by taking food. In doubtful cases a so-called double sugar tolerance test should be done. After the fasting blood sugar content has been determined, 50 grams of glucose are given; three hours later another 50 grams are administered, and the blood sugar level is followed closely for a period of six hours, beginning with the initial dose of glucose. It is significant if pronounced hypoglycemia is present at the outset, or develops at any time during the test, particularly if it is attended with recognizable symptoms. Patients with orthostatic hypotension, unless they also have spontaneous hypoglycemia, which has been known to occur, respond to this test in the same way as normal subjects.

The pathogenesis of orthostatic hypotension is still largely a matter of speculation, and no uni-

formly successful treatment has been discovered. Symptomatically, however, it is often possible to do something for those unfortunate patients. Ghrist and Brown⁶ introduced the use of ephedrine, and it is always worth a trial, although it has failed as often as it has succeeded. In 1937, Randall and the author⁷ reported a case in which, for the first time, benzedrine sulphate was used. Although we were able to force the blood pressure to a somewhat higher level with ephedrine than with benzedrine (100/75, as compared with 80/60, in the standing position), the patient liked benzedrine better than ephedrine because it made him less tremulous, induced less insomnia, and was somewhat more effective in dispelling his weakness. The maximum doses employed were as follows: of ephedrine, 48 milligrams at six, eight, ten, twelve, two, four and six o'clock, making a total of 336 milligrams, or a little over 5 grains; of benzedrine, 40 milligrams at six o'clock, 30 milligrams at eight o'clock, 20 milligrams at ten, twelve and two o'clock and 10 milligrams at four and six o'clock, making a total of 150 milligrams, or approximately two and one-half grains. However, if such large amounts were employed for more than a few days at a time, it became difficult, even with full doses of the various barbiturates, to overcome the consequent insomnia.

In 1938 we⁸ published further observations on this patient, including studies of the effect of paredrine, an amine related to benzedrine, which was said to have a greater pressor action than benzedrine and none of its stimulating effect on the central nervous system. We found that the pressor effect of paredrine was practically the same as that of benzedrine, but the patient preferred benzedrine because it invigorated and stimulated him, whereas paredrine had no appreciable effect on his lassitude. This suggests very strongly that the chronic feeling of fatigue which is so characteristic of orthostatic hypotension is not due entirely to the fact that the blood pressure is low. Paredrine did not produce insomnia, even with doses as large as 400 milligrams a day; contrariwise, it seemed to exert a soporific effect, for the patient not only slept soundly at night, but frequently dozed during the day. After much experimenting with the method of administration of these two drugs, we ultimately concluded that the most satisfactory results were obtained when we gave 20 milligrams of benzedrine at 6:00 and 7:00 a. m., and 40 milligrams of paredrine every two hours from 8:30 a. m. until 2:30 p. m. This treatment would raise his blood pressure from 65/50 at 8:30 in the morning to 100/80 in mid-afternoon.

This medication, with small doses of pilocar-

pine, enabled the patient to live a quiet life in comfort, but not to do much work. He now perspires again freely, and is no longer entirely impotent or devoid of libido. In fact, the last time I saw him he confessed that he had once more assumed the responsibilities of marriage and was discharging them fairly satisfactorily, which, if true, is a highly creditable performance for a sixty-five year old man with orthostatic hypotension. However, it remains to be seen whether benzedrine and paredrine will prove to be sufficiently efficacious in other cases to justify their continued use.

SECONDARY HYPOTENSION

Addison's Disease. The hypotension secondary to Addison's disease is probably partly responsible for the fatigability, dizziness and syncope to which the patients are subject. It is, nevertheless, true that successful treatment of this disease, so successful that the patient is enabled to engage indefinitely in hard manual labor, has less effect on the hypotension than on any of the other manifestations, with the possible exception of the pigmentation. Benzedrine and paredrine might be useful adjuncts, but a high-sodium, low-potassium intake, with or without substitution therapy, is, of course, far more important.

Coronary Occlusion. Although there may be an early, or even a sustained, rise of blood pressure following coronary occlusion, hypotension is the rule, and the level to which the blood pressure falls often determines the prognosis. This raises a nice question in therapeutics, since the intravenous administration of aminophyllin, which is known to augment the flow of blood through the coronary arteries, also tends to lower the blood pressure. However, if the drug is diluted with about 30 cubic centimeters of physiologic salt solution, and the injection is given slowly, over a period of not less than five minutes, no appreciable lowering of blood pressure will occur.

Operations on the Nervous System. Extensive surgical operations on the central and peripheral nervous system for the relief of essential hypertension are sometimes followed by hypotension, which may be orthostatic. This is usually temporary, and thus far has not proved to be a serious sequel. When the orthostatic feature is prominent, the same treatment used in cases of spontaneous orthostatic hypotension may be employed.

Shock. Together with hemoconcentration, reduction of blood volume, fall of body temperature and tachycardia, hypotension is a cardinal manifestation of shock. A detailed discussion of the pathogenesis of shock is not within the scope of this paper, because the peripheral circulatory failure is a symptom, not the underlying cause of

the condition. The magnitude of the fall in blood pressure is, however, like the degree of hemoconcentration, one of the best measures of the severity of shock. Surgeons need not be told that shock can be prevented in the majority of cases by proper preoperative precautions, but in emergencies, particularly those encountered in the army, there is often no time for these preparations. Once the condition has developed, the most urgent therapeutic indication is to increase the blood volume, which, incidentally, raises the blood pressure. This is best accomplished by transfusion of whole blood, whether or not hemorrhage has occurred. The benefit obtained from saline infusions is only temporary. Cannon⁹ has said, "Salt solutions fail to produce a permanent rise of blood pressure because they lack a colloidal material which, like the protein of the blood plasma, will not pass the capillary walls, and which, by its osmotic pressure, prevents water from passing through." Gum acacia is a poor substitute for whole blood. Its osmotic effects are beneficial, it is true, but the fact that it is stored permanently in the liver, and probably interferes seriously with hepatic function, makes its use undesirable. It is extremely important to try to raise the body temperature by the application of heat externally and the administration of non-alcoholic hot drinks. Pressor drugs, such as adrenalin and pitressin, are definitely contraindicated; although they may raise the blood pressure temporarily, in so doing they not only do not help to improve capillary flow, which is the paramount desideratum, but may actually diminish it. Capillary flow cannot be augmented except by increasing the blood volume.

Spinal Anesthesia. In the majority of cases, the induction of spinal anesthesia produces a prompt and profound fall of blood pressure. This form of anesthesia is therefore directly contraindicated when postoperative shock is to be anticipated, as surgeons on duty at Casualty Clearing Stations during the first World War soon discovered. In elective surgery, however, when the necessary precautions can be taken, it has proved to be safe and extremely useful. As an example, let me recite the experience of the men in the department of Urology at the University of Iowa. Their usual procedure is to give a preliminary subcutaneous injection of 75 milligrams of ephedrine. This is followed at once by the lumbar puncture, and novocaine crystals in the amount of 75 to 125 milligrams are dissolved in 1.5 to 2.5 cubic centimeters of spinal fluid and injected into the subarachnoid space. In approximately fifteen per cent of the cases no fall of blood pressure is detected. In the others the fall begins within five or ten minutes, and, regardless of whether the

preoperative pressure was normal or high, may attain the levels frequently seen in shock and orthostatic hypotension, e.g., 80/60, or less. The patient becomes pale, cold and perspires profusely. Nausea and vomiting may occur. This acute hypotension yields promptly to an intravenous injection of five minims of adrenalin, which usually does not have to be repeated. In more than 3,000 cases, comprising mostly old men upon whom transurethral prostatic resection was performed, there was not a single fatality which could be attributed to the anesthetic.

Pneumonia. Peripheral circulatory failure is a justly feared complication of many systemic infectious diseases, such as pneumonia, typhoid fever and meningitis. Only a few years ago we were still being taught that myocardial failure is one of the major complications of pneumonia. The pneumococcemia and anoxemia were said to injure the heart muscle directly, which, of course, may be true to a certain extent, and, in addition, it was alleged that the work of the right ventricle was increased by a rise in pulmonary arterial pressure secondary to obliteration of part of the pulmonary vascular bed by the pneumonic process. Many excellent clinicians therefore administered digitalis routinely to patients with pneumonia. Our present views on this subject are, I am sure, much more sound. In the first place, the theory that pneumonic infiltration increases the work of the right ventricle was invalidated, perhaps even before it was enunciated, by the almost forgotten work of Ludwig Lichtheim,¹⁰ who, in 1876, showed that the removal of one entire lung raises the pressure in the pulmonary artery only a few millimeters of mercury. It is safe to conclude, therefore, that in most cases of pneumonia the work of the right ventricle is not increased by any mechanical factor. Congestive heart failure may occur, nevertheless, possibly partly as a result of the toxemia and anoxemia. However, contrary to our former point of view, it is so unusual, particularly in younger persons whose hearts were normal before they contracted pneumonia, that it can be almost disregarded. As the use of the modern, strikingly effective drug and serum therapy becomes more widespread, it will probably disappear entirely.

On the other hand, the danger of vasomotor collapse, with peripheral circulatory failure and hypotension, is omnipresent, and, inasmuch as it is well known that digitalis is definitely contraindicated in conditions in which there is vasomotor failure or a tendency toward it, the drug should never be administered unless unmistakable signs of myocardial insufficiency develop, or unless there is some specific indication for its use, such as auri-

cular fibrillation or auricular flutter attended with a rapid ventricular rate. Its routine administration to patients with pneumonia is dangerous, as was conclusively demonstrated by Wyckoff, DuBois, and Woodruff¹¹ about ten years ago. It has been suggested that the hypotension and other indications of severe prostration in pneumonia are often the result of temporary adrenal insufficiency, and that substitution therapy be employed to combat them. For this purpose the very efficacious preparation known as "cortalex" may be administered by mouth, and the intake of salt increased.

The best treatment, however, is prophylactic. Our increasing ability to make the diagnosis of pneumonia in its earliest stages, which enables us to begin treatment with specific antiserum and sulfapyridine at the time when they are most effective, the administration of oxygen, and, occasionally, blood transfusion, have greatly diminished the incidence of vasomotor failure. It is very important that oxygen be administered efficiently. The optimum concentration in the upper air passages is from forty to sixty per cent. In order to maintain this, if the catheter method is used, the tank must deliver six to eight liters a minute, but so large a volume flow will produce intolerable dryness of the respiratory mucosa unless one of the recently developed humidifying devices is employed. The "BLB" mask is a welcome alternative in many cases. With methods so satisfactory as these, there is no longer any need for the oxygen tent, which is not only more expensive, but is a nuisance, both to the patient and his attendants.

CONCLUSION

My intention was to discuss some of the more interesting and practical phases of hypotension, not to present a comprehensive survey of the subject. This explains why I have said nothing of the hypotension secondary to myasthenia gravis, Simmond's disease, anorexia nervosa, adipositas dolorosa, and infantilism, and why I neglected all of the systemic infectious diseases except pneumonia.

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Discussion

Dr. Randall: We have a few conditions in gynecology and obstetrics which are associated with hypotension. Sometimes we see a fulminating infection following abdominal hysterectomy in a patient with no previous inflammatory process in her pelvis. Occasionally, in such a patient, circulatory collapse occurs during the first few postoperative days. It is difficult for us to make a differential diagnosis between a circulatory collapse due to an overwhelming infection and one due to intra-abdominal hemorrhage. Obviously, a correct diagnosis is of considerable importance, since in the case of hemorrhage one should enter the abdomen to control the bleeding. I have seen two cases diagnosed as postoperative intra-abdominal hemorrhage. Each of these patients was operated upon but no blood was found in the peritoneal cavity. Postmortem examinations demonstrated that they died of fulminating infection.

We often see hypotension in obstetric patients who are seemingly normal. This hypotension is of little significance but it may cause fainting spells and even some injury if the patient falls. Acute hypotension may be seen as the result of loss of blood in certain conditions in obstetrics; namely, ruptured ectopic pregnancy, uterine abortions, abnormal separation of the placenta during the third stage of labor, placenta praevia and premature separation of the normally implanted placenta. In the last condition, especially the concealed variety, the shock is out of proportion to the amount of external bleeding. Not infrequently, we see a type of vascular collapse in patients with hypertension. The collapse usually appears shortly after delivery, and is characterized by a weak rapid pulse, hypotension, cyanosis and often pulmonary edema. A few of these patients do not recover from their collapse. Pituitrin given intravenously and less often subcutaneously may produce a mild degree of shock. There is also a pure type of obstetric shock. This type of shock is seen in a normal patient and has nothing to do with the type of delivery. On postmortem examination nothing can be found to account for the shock. Fortunately these cases are extremely rare.

Dr. Cullen: In the course of our daily work as anesthetists we are frequently confronted with the task of attempting to interpret various irregularities in the circulation as pictured by the blood pressure and pulse curves during anesthesia and operation. Dr. Korn's talk has helped to clarify some of these pictures. I have selected five charts representing various types of hypotension which, except for the first slide, are not surgical shock.

The first chart demonstrates true surgical shock. We follow the tenets of Virgil Moon who defines shock as a state of circulatory deficiency not cardiac in origin in which there is a disparity between the circulating blood volume and the volume capacity,

and in which there is hemoconcentration. It will be noted that in this patient the abrupt elevation of the pulse was followed by a fall in systolic and diastolic pressure and a diminution in pulse pressure. Dr. Besser obtained blood samples which showed a hemoconcentration of 42, or four points over the preoperative level of 38. Fluids administered intravenously promptly restored the pulse to its original rate and quality and the blood pressure to its original figure. The hemoconcentration dropped to 40.4.

The second chart is that of a patient with cholecystectomy done under ether anesthesia, and demonstrates the so-called celiac plexus reflex. It will be noted that at the time the surgeon was exploring the common duct the blood pressure apparently disappeared completely although the pulse did not change appreciably in rate or quality and the patient looked all right. Actually there was a marked diminution in the pulse pressure and on occasion single beats could be heard through the stethoscope at or near the last systolic level. This phenomenon comes about as a result of stimulation of the celiac plexus. It can be prevented in three ways; first, by employing cyclopropane instead of ether as the agent since cyclopropane has a different action on the autonomic nervous system; second, by infiltrating the plexus with procaine; or third, by relieving the pressure, if possible. No change in the anesthesia was effected here, no fluids were given and the pressure came back to its original level as soon as pressure was relieved.

The third chart is that of a patient with thyroidectomy done under cyclopropane anesthesia and demonstrates the vasomotor type of response to stimulation of a hyperactive carotid sinus. At the time the surgeon was attempting to free a large adenomatous gland posteriorly the blood pressure became inaudible, the pulse changing neither in rate nor quality. When the lobe was removed the blood pressure returned immediately to its former level. During this hypotension the condition of the patient was satisfactory as to color and feel. This circulatory response to pressure on the carotid sinus can be prevented first, by using ether as the agent (which, however, is not advisable in thyroid surgery) since ether depresses the carotid sinus reflex; second, by infiltrating the area about the bifurcation of the carotid artery with procaine; or, third, by removing the pressure.

The fourth chart represents radical mastectomy done under cyclopropane anesthesia. It will be noted that while axillary dissection was being done the pulse pressure diminished markedly at the expense of the systolic pressure, and the pulse, although slightly increased in rate, was essentially the same in quality. It is difficult to determine whether this picture is true shock or a reflex manifestation since there is chromaffin tissue in the arch of the aorta similar to that in the carotid sinus. In theory, traction on the axillary vessels might simulate carotid sinus pressure and effect this reduction in pulse pressure. We have seen a number of these reactions and they usually occur at the time of axillary dissection which is relatively early in the procedure. It is diffi-

cult to believe that traumatic shock or hypotension from hemorrhage, which is usually minimal, could account for this picture. Coincident with the cessation of manipulation in the axilla, fluids were given intravenously and the pulse pressure was restored to its original level. A completely satisfactory explanation is lacking.

The fifth chart represents a lumbar ganglionectomy done under cyclopropane anesthesia. The patient had previously had a right lumbar ganglionectomy for hypertension. He was placed on his right side and shortly after the anesthesia was started the kidney rest was elevated. The systolic pressure fell within ten minutes producing a marked diminution in pulse pressure and no change in pulse rate or quality. After about ten minutes of this reduced pulse pressure the kidney rest was lowered and the pulse pressure came back immediately to its former level. No change in the anesthesia was effected nor were any intravenous fluids given. This case, I believe, is an example of orthostatic hypotension about which Dr. Korn spoke.

These cases represent only a few of the many hypotensive states encountered. Since treatment is different in each type, an accurate diagnosis is imperative. Further investigation into the various etiology is indicated.

Dr. Dulin: Individuals with essential or chronic hypotension, even with relatively low blood pressures, are as good surgical risks as those with normal blood pressures, and certainly better risks than those with hypertension. The surgeon is often confronted with cases of acute hypotension, usually spoken of as surgical shock. The term surgical shock is applied to conditions of acute circulatory failure which may be induced by a variety of causes, several of which may be acting at the same time. Accidents and various surgical procedures which may cause shock are well understood but the exact mechanism by which such injuries act is not. It must be remembered that the maintenance of a blood pressure level is dependent upon three factors, the force of the heart beat, the size of the vascular bed, and the blood volume.

Many theories as to the cause of shock have been propounded. These include a toxic theory, an anemia theory, an acapnia theory and a neurogenic theory. The neurogenic theory is the basis of Crile's belief that a vasomotor paralysis causes an increase in the blood bed with an associated fall in blood pressure. This is often used to explain the fall in blood pressure following spinal anesthesia. However, following spinal anesthesia with a fall in blood pressure the pulse is often slow, the extremities are warm and dry, and there is no evidence of vasodilatation of the limbs, the retinal or abdominal vessels. The same theory is used to explain the fall in pressure noted at times during abdominal exploration, particularly about the biliary tract, the stomach and duodenum. Dr. Cullen has shown the chart of an excellent example of such a case.

In surgical operations shock is caused principally by prolonged and rough handling of tissues, by loss of blood and by improper anesthesia. The loss of

blood is probably the most common cause. One may be surprised at the amount of blood which is lost at the time of operation. In fact, 500 to 750 cubic centimeters of blood may be lost without the operator being aware of anything unusual. We know that the withdrawal of 1,000 cubic centimeters from a normal individual is very upsetting. When such a blood loss does occur the volume must immediately be replaced. Usually normal saline intravenously is given first, supplemented with blood in the form of a transfusion if the condition is marked. One must avoid prolonged acute hypotension because of the associated cerebral anemia which may result in nervous tissue degeneration within a short period of time. These patients may respond to emergency therapy and later develop secondary shock and die. An occasional patient will live, but suffer residual cerebral damage.

Dr. Flocks: The acute types of hypotension occur frequently, but the underlying factors, especially those associated with spinal anesthetics and with certain cases of septicemia, are imperfectly understood. For that reason the treatment is not standardized.

In a period of six years, 4,010 spinal anesthetics were given in the Urologic Department with only one death; this death was probably due to coronary occlusion rather than to the effects of the anesthesia itself. I want to emphasize the importance of adrenalin, administered intravenously, in the treatment of the hypotension observed in this series of patients. Another type of hypotension which we have seen in the Urologic Department has been that associated with acute sepsis. Two such patients lived, but apparently would not have done so if their hypotension had not been treated energetically by adrenalin and ephedrine in addition to blood and fluids intravenously.

I want to stress the multiplicity of the factors underlying the different types of hypotension, and the fact that the hypotension associated with spinal anesthesia and in certain cases with acute sepsis is very definitely improved by intravenous injections of adrenalin and ephedrine. These drugs are valuable in this group of patients with hypotension, although in many cases of true shock their use is contraindicated. True shock must be differentiated from the above types of hypotension.

THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCE

INTRATHORACIC GANGLIONEUROMA

LAURENCE E. COOLEY, M.D., and
F. P. McNAMARA, M.D., Dubuque

The case to be presented is of general interest because it is one of the four necropsies on doctors in Dubuque during the last ten years. In 1935, Hancock¹ in an article on the value of necropsy studies stated: "As it is unreasonable and unfair to expect or ask another to do what one would not do oneself, members of the medical profession should lead the way in specifying that a necropsy be performed on themselves and the members of their family." The members of the Dubuque County Medical Society have assumed this leadership and in addition to the four necropsies on doctors themselves, necropsies have been performed on seven of the twelve members of their families. The case is of more specific interest first, because of the unusually interesting clinical history; second, because of the large amount of pathology present in a man who continued his practice until his last illness; and third, because of the identification of a tumor of the right thorax which had been known to be present for at least eighteen years.

CASE REPORT

Terminal Illness: The patient, a physician sixty-two years of age, was taken ill four and one-half days before admission to the hospital with a chill, followed by a temperature of 104 degrees. At the onset, he had no symptoms except slight aching in the joints. The temperature continued; the pulse was 128 per minute, the breathing was not labored and there was no cough. The physical examination was entirely negative. A white blood count was 16,000 with 74 per cent neutrophils. Forty-eight hours after the onset he developed a moderately severe diarrhea and it was thought that he had an intestinal infection. Stool cultures were negative for pathogenic bacteria. On the night of the fourth day (108 hours after the onset) the patient complained of slight pain in his chest on inspiration. The white blood count was 17,000 with 78 per cent neutrophils. On the following day, a portable x-ray film of the chest showed beginning consolidation in the left upper lobe, extending outward and upward from the hilus and characteristic of lobar pneumonia. He was admitted to Finley Hospital on the fifth night (January 10, 1936) when he had developed rapid,

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labored respirations and a cough, with rusty sputum. The sputum showed numerous pneumococci which proved to be Type I.

Course in the Hospital: On admission the temperature was 103 degrees. A total of 32,000 units (Felton) of antipneumococcus serum was given. The next morning his temperature was 100.2 degrees and he was placed in an oxygen tent. The pulse, which was of fair quality, ranged between 132 and 138. On the second day his temperature rose to 103 degrees but fell to 100 degrees on the morning of the third day. During the day the temperature rose only to 100.6 degrees, but in spite of apparent improvement in the lung, the pulse became weaker and more thready and he died that evening of cardiac failure.

Past History: The patient had the "usual diseases of childhood" and also was said to have had acute attacks of rheumatic fever until he was eight years of age. He had had none since. When eighteen years of age he had two severe attacks of appendicitis, and during the last one the appendix was thought to have ruptured into the rectum with the discharge of a large amount of pus. When the patient was forty-four years of age, a routine x-ray examination of the chest showed a round shadow in the right chest. This was behind the right lung and centered in the angle between the sixth and seventh ribs and the vertebral column. At various intervals during the next seventeen years the tumor was studied by roentgenologists in Boston, Baltimore and Chicago, as well as by local men. During that period it gave rise to very few symptoms although it caused some worry because its nature was unknown. Various roentgenologists had suggested diagnoses such as aneurysm of the aorta, chondroma, fibroma, lipoma, neurofibroma and encapsulated tuberculous glands. Slight change occurred in the mass throughout the years, although there was finally some erosion of the seventh rib and kyphosis of the spine opposite the tumor. Syphilitic aneurysm was ruled out by repeated serologic tests and the failure of progress in the lesion. Aspiration was attempted at one time and the few drops of serous fluid obtained suggested the possibility of a cyst. All who studied the lesion agreed that it was benign and advised non-interference in the absence of symptoms.

Twelve years before the last illness a diagnosis of duodenal ulcer was made and two years later he had a severe gastric hemorrhage which required hospitalization for three weeks. The ulcer slowly healed under dietary restriction and alkali therapy. While he had occasional attacks of gastric distress, these were controlled by a bland diet and alkalies.

In 1927 the patient had a cardiac attack which caused him to collapse. After remaining in bed for a week he recovered, although an exact diagnosis was not made. Previous to that time and ever since he had known that his heart rate was rapid (88 to 96 per minute) and he had had an occasional attack of paroxysmal tachycardia. He was first seen as a patient by one of us (L.E.C.) in 1931 when it was noted that he easily became short of breath. Electrocardiograms at that time and at yearly intervals since showed myocardial damage, and a diagnosis was made of old coronary thrombosis with a healed infarct of the left ventricle. By leading a somewhat restricted regime and with an increased amount of rest, he was comfortable and continued his practice.

A year before his last illness he went on a hunting trip during which he developed a cough and high temperature. His condition was diagnosed as bronchopneumonia. After remaining in bed about a week he continued to hunt and this caused considerable difficulty in breathing. One night about six weeks after his return (March, 1935) and while lying down, he was seen in an attack typical of bronchial asthma which was relieved by adrenalin. During the spring he had several such attacks which incapacitated him somewhat although he still continued practice. Adrenalin brought relief in all instances. During the summer months he was free from the attacks. In September, 1935, he had an attack of severe epigastric pain which required one-fourth grain of morphine in order to obtain relief. Other similar attacks, sometimes associated with asthma, always occurring when he was lying down, and associated with pain in the left shoulder and sometimes down the arm, were also relieved by adrenalin. An x-ray examination at this time indicated that the duodenal ulcer had healed. All skin tests for allergy were negative. Allergic diets also gave no information as to the etiology of the bronchial asthma. Two months before his final illness, he was free from the asthmatic attacks, but he developed cardiac decompensation which cleared quickly with rest and digitalis therapy. After a week, he returned to his office but took rest periods during the day. He also began to eat whatever he desired and gained weight. The heart rate dropped from 120 to 80 per minute and he felt better than he had since the hunting trip ten months before.

Abstract of Necrosy Report: The body was that of an unusually well developed and well nourished white man. Externally the body was unremarkable. The heart was dilated and enlarged, weighing 700 grams. There was a thin scar approximately four centimeters in diameter in the

apical region of the left ventricle. Here the myocardium averaged five millimeters in thickness, whereas in the upper two-thirds the average was fifteen millimeters. On dissection the coronary arteries were tortuous and somewhat calcified. The calcification was most marked in the left artery, and just beyond its division the lumen was essentially obliterated. On microscopic studies this was found to be due to a canalized and partly calcified thrombus. The entire aorta and its main branches showed extensive arteriosclerosis and there was a marked tendency for the intima to ulcerate. There were two aneurysm-like dilations of the abdominal aorta. There was no evidence of syphilis either grossly or microscopically. The upper lobe of the left lung was consolidated, and microscopically resolution was beginning. Aside from a calcified Ghon tubercle and peribronchial lymph node on the right side, and irregular congestion and edema, the lungs were unre-

The gross character of the thoracic tumor can be seen in Figure 1. It measured fifteen by nine by five centimeters and the cut surface was pink to gray with a yellow tint. It seemed to be composed of connective tissue. Microscopically it showed a connective tissue stroma with clumps of ganglion cells and strands of non-medullated nerve fibers. The ganglion cells were normally pigmented and were unipolar. The number of these cells varied in different sections, but all were fully differentiated.

Anatomic Diagnosis: Primary. Left lobar pneumonia; canalized coronary thrombosis and healed infarct of the left ventricle; cardiac dilatation and hypertrophy; and ganglioneuroma of the right thorax.

Subsidiary. Healed duodenal ulcer; chronic cholecystitis and cholelithiasis; calcified Ghon tubercle and peribronchial lymph node (right) and calcified tubercles of the spleen; obliterative appendicitis; peritoneal adhesions.

COMMENT

Aside from the nature of the thoracic tumor, there were two other puzzling features in this case. One feature was the attacks of epigastric pains which in some instances were accompanied by asthma. Clinically, the pain was thought to be due to gastro-intestinal allergy or to a recurrence of the duodenal ulcer. The latter was eliminated as a possibility by the negative x-ray examination. In view of the failure to discover any substance to which the patient was sensitized, the disappearance of the attacks after an unrestricted diet was resumed and the unsuspected finding of gall stones at necropsy, a more likely explanation is that the pain was due to biliary colic. This diagnosis would also fit in with the necessity of administering morphine for relief of the pain.

A second feature worthy of comment, was the attacks of asthma which clinically were of the bronchial type. In view of the cardiac condition diagnosed during life, and verified at necropsy, it might be argued that the attacks were of cardiac origin. Against such a diagnosis is the fact that cardiac asthma is not relieved by adrenalin as the paroxysms were in this patient. Furthermore, when his heart became decompensated, the attacks ceased, whereas one would expect that they would be aggravated. Therefore it must be assumed that he had bronchial asthma of unknown etiology.

Finally, the intrathoracic ganglioneuroma is of interest because of its long duration and because of its rarity. The fact that the tumor changed only slightly after its recognition eighteen years

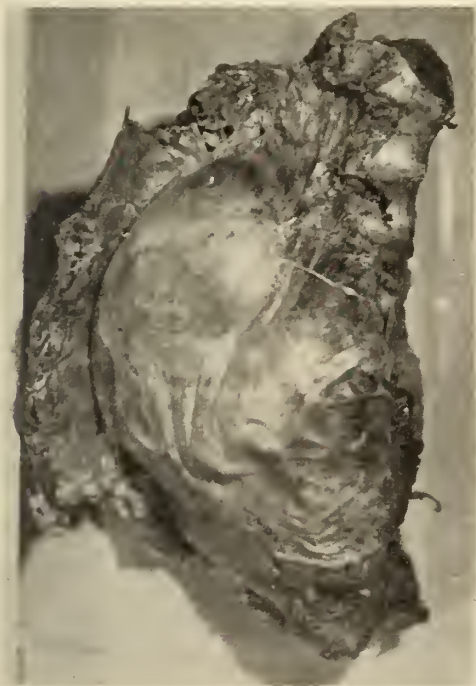


Fig. 1. Ganglioneuroma in costovertebral angle and behind the pleura.

markable. Calcified nodules in the spleen were interpreted as healed tubercles. There was a dense scar beneath the mucosa of the first portion of the duodenum, but no active ulcer was present. The appendix was represented by a short fibrous stump with essentially no lumen. There were fibrous adhesions between the cecum and loop of adjacent ileum. The gallbladder had a thickened wall and contained several large and small calculi.

before death, indicates that it had been present for some time, possibly since childhood. These tumors arise between the posterior thoracic wall and the pleura. They may be small or reach the size of a child's head. The majority are found in childhood and probably are of congenital origin. The vast majority of tumors are benign, but occasionally they become malignant. Some of the cases reported have been silent, as was our case, and were only found at necropsy. In other cases symptoms are the result of pressure upon adjacent structures. Cough and dyspnea result from pressure on the trachea. Pressure on the thoracic cord may cause weakness of the lower extremities or pain in the chest. Apparently some of the tumors do not endanger life and may require no treatment. If signs of intrathoracic pressure develop, the treatment is surgical removal. This has been fairly successful in the past. With better diagnosis and improved thoracic surgery results should improve in the future. Fingerland² recently stated that Roska and Skorpil had collected 164 cases of ganglioneuromas in the literature. Fingerland reported an additional case which originated in the uterine cervix. The sites of origin in Roska and Skorpil's series were as follows:

Cervical sympathetic	24
Thoracic sympathetic	25
Suprarenal glands	46
Pelvic sympathetic	15
Skin	9
Eye	2
Mesentery	5
Urinary bladder	1
Stomach and intestine.....	2

In 1938 Schmeisser and Anderson³ reported a case in a negro girl four years of age, in which the origin was the ovary. That these tumors are being recognized more frequently is indicated by the fact that McFarland⁴ was able to collect only 93 cases in 1931.

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NINTH ANNUAL SPRING CLINIC OF THE ST. JOSEPH CLINICAL SOCIETY

The St. Joseph Clinical Society will present its ninth annual two-day spring clinic on March 20 and 21, at the Hotel Robidoux in St. Joseph, Missouri. The participating guest speakers will offer what is virtually a concentrated postgraduate course in recent advances in clinical medicine and surgery which will appeal particularly to the general practitioner.

The St. Joseph Clinical Society extends a most cordial invitation to all members of the medical profession. The program is as follows:

Dr. Robert Elman, St. Louis, Missouri—Intravenous Fluids in the Surgical Patient with Special Reference to Protein Replacement.

Dr. Emil Hauser, Chicago, Illinois—Low Back Pain Due to Functional Decompensation.

Dr. Lee Forrest Hill, Des Moines, Iowa—Changes Produced by Severe Diarrhea and Their Restitution.

Dr. Virgil E. Simpson, Louisville, Kentucky—Criteria for Classification and Diagnosis of Heart Disease.

Dr. Simpson (Banquet)—Chemotherapy of Pneumonia.

Dr. C. W. Mayo, Rochester, Minnesota (Banquet)—Malignancy of the Right Colon.

Dr. Leo C. Rigler, Minneapolis, Minnesota—Roentgen Diagnosis of Acute Abdominal Conditions and Bronchial Asthma.

Dr. William B. Kountz, St. Louis, Missouri—The Heart and Vascular System in Middle Age and Its Importance in Clinical Medicine.

Dr. Paul A. O'Leary, Rochester, Minnesota (Banquet)—The Eczemas and Treatment of Syphilis.

Dr. J. C. Birdsall, Philadelphia, Pennsylvania—Incidence of Urinary Tract Obstruction in Renal Disease.

Dr. Lester D. Powell, Des Moines, Iowa—Consideration and Surgical Treatment of Uterine Prolapse.

Dr. Lathan A. Crandall, Jr., Memphis, Tennessee—Vitamin B and Functional Digestive Disturbances.

HOBBY EXHIBIT

Entries are now being received for the Hobby Exhibit which is to be held in connection with the annual meeting. Send yours in now so that space will be reserved for your hobby. Write to Dr. L. K. Meredith, Chairman, 505 Bankers Trust Building, Des Moines, Iowa.

STATE DEPARTMENT OF HEALTH

Walter L. Biering

LICENSE REQUESTED FOR HUMAN IMMUNE PERTUSSIS SERUM

Since October, 1939, the State Department of Health has had available for distribution to attending physicians, a limited amount of convalescent pertussis (human immune) serum. Announcement regarding this type of immune serum was made in the October issue of the JOURNAL, page 514. On February 1, 1940, request was made of the National Institute of Health, United States Public Health Service, for approval of pertussis convalescent serum. Several vials of this material were sent to the National Institute of Health in February, together with completed application forms. Approval of the serum by the Division of Biologics Control of the National Institute of Health will extend to the Department's Serum Center the license to distribute pertussis serum.

FURTHER STUDY OF HUMAN SERUM

E. K. Vaubel, M.D., assistant director, Division of Preventable Diseases, left Des Moines Sunday, March 3, to spend a number of days in association with Sidney O. Levinson, M.D., director of the Samuel Deutsch Serum Center, Michael Reese Hospital, in Chicago. Study is being made of newer developments and application of the use of convalescent and normal human serum.

INCREASE IN EARLY PRENATAL CARE

One of the main objectives of educational programs in the interest of maternal and infant health is to teach mothers the need for and value of early and continuous prenatal medical care as well as medical service at the time of delivery. This principle is brought to the attention of the public by lay organizations and magazines in addition to health departments and other health agencies. Tables I and II indicate that the trend of maternal and infant mortality rates has been downward, but that the rates have not reached an irreducible minimum.

Another interesting fact brought out by a com-

parison of Tables I and II with Table III is the degree of relationship between the lowering maternal and infant deaths and the time in pregnancy that women seek medical care. Table III shows that an increasing number of mothers are coming under medical supervision earlier in pregnancy. Here again the ultimate goal has not been reached and education of the public must continue.

The State Department of Health is prepared to furnish, without cost, informative literature on the importance of adequate care of infants and expectant mothers. This material has been approved by the Committee on Child Health and Protection of the Iowa State Medical Society and consists of printed booklets and sets of prenatal letters to mothers. The latter are mailed only upon the request of physicians.

TABLE I
MATERNAL MORTALITY
Iowa, 1932-1939

Year	Maternal Deaths	Deaths per 1,000 Live Births
1932	219	5.5
1933	210	5.3
1934	216	5.1
1935	214	5.2
1936	195	4.6
1937	189	4.5
1938	145	3.3
1939*	131	3.1

*Tentative

TABLE II
INFANT MORTALITY
Iowa, 1932-1939

Year	Infant Deaths	Deaths per 1,000 Live Births
1932	1938	48.2
1933	1902	48.1
1934	2150	50.6
1935	1930	47.0
1936	2076	48.6
1937	1863	44.3
1938	1751	40.5
1939*	1665	39.2

*Tentative

TABLE III
PERCENTAGES OF WOMEN VISITING PHYSICIAN IN
CERTAIN PERIODS OF PREGNANCY

Iowa, 1932, 1937, 1938, 1939*

	1932	1937	1938	1939
During first three months	10%	37%	39%	42%
Fourth and fifth months	16%	19%	20%	19%
Sixth and seventh months	13%	19%	18%	17%
After seventh month	31%	23%	22%	21%
Not stated	30%	2%	1%	1%

*Only data available.

LICENSE FOR SERUM CENTER

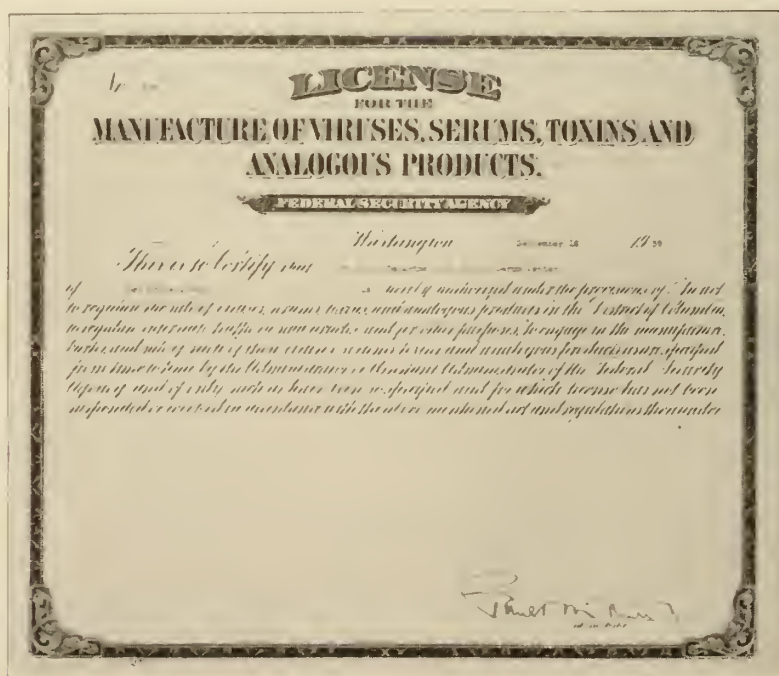
On March 1, 1939, the Commissioner directed a letter to Thomas Parran, M.D., Surgeon General, United States Public Health Service, Washington, D.C., requesting that the Serum Center of the Iowa State Department of Health be granted a license for preparation and distribution of human immune (convalescent) serum. In June, 1939, a visit to the Department's Serum Center was made by W. G. Workman, M.D., acting chief of the Division of Biologics Control, United States Public Health Service. Dr. Workman inspected the equipment and steps in preparation of convalescent serum, later submitting a report and certain recommendations to the Commissioner. The Department's Serum Center forwarded samples of human immune serum to the National Institute of Health, and after purchase of additional equip-

ment, completed requirements for procuring a government license.

The Serum Center was licensed with the United States Public Health Service under date of September 28, 1939. The license (see accompanying figure) contains the signature of Paul T. McNutt, Administrator, Federal Security Agency.

PREVALENCE OF DISEASE

	Jan. '40	Dec. '39	Jan. '39	Most Cases Reported From
Diphtheria	17	35	40	Plymouth, Black Hawk, Polk, Worth
Scarlet Fever	361	417	528	Polk, Woodbury, Floyd, Scott, Black Hawk, Cerro Gordo
Typhoid Fever	5	1	5	Cerro Gordo, Dubuque, Fremont, Lee, Wapello
Smallpox	64	43	155	Muscatine, Carroll, Louisa
Measles	264	214	612	Polk, Des Moines, Linn, Clarke, Union
Whooping Cough	24	107	73	Pottawattamie, Des Moines, Dubuque, Howard, Poweshiek, Story
Epidemic Meningitis	1	0	1	Delaware
Chickenpox	352	463	558	Greene, Lee, Woodbury, Linn
Mump	249	379	143	For the State
Pneumonia	253	185	210	For the State
Poliomyelitis	12	32	0	Calhoun, Carroll, Clarke
Tuberculosis	48	31	97	Lee, Scott, Clinton, Linn, Des Moines, Polk
Undulant Fever	22	23	4	Polk, Scott
Gonorrhea	172	122	122	For the State
Syphilis	267	277	230	For the State



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THE THERAPY OF WHOOPING COUGH

Evidence is gradually accumulating upon which it would soon seem possible, if present trends continue, to draw certain definite conclusions regarding the prophylaxis and treatment of whooping cough. Vaccine of the type now familiarly known as Sauer's is probably efficacious in a majority of cases provided exposure to the disease occurs after the prescribed four-month interval following administration. No type of vaccine is effective in exposed children or in those who have the disease. No medicinal form of therapy exists which exerts any specific influence upon the course or severity of whooping cough. Convalescent serum and "hyperimmune" serum on the other hand have each been reported by several observers as being effective agents for prophylaxis in exposed children, and for therapy in children having the disease. Widespread use of Sauer's vaccine might materially reduce the number of children requiring other therapy. However, there must of necessity remain many infants below the age level at which vaccine is ordinarily administered or in whom the four-month interval has not elapsed. It is in this group that an effective form of therapy is urgently needed, particularly since whooping cough has its highest mortality rate in the early months of infancy.

Cohen, Weichsel and Lapin¹ studied more than 1,000 cases of pertussis in the Whooping Cough Clinic of the Bronx Hospital during the last four years. Among the medicinal agents employed were gold tribromide, three per cent ephedrin by mouth and nasal passages, one per cent adrenalin sprayed into the larynx, and large doses of pare-

goric, as well as the usual antipyrine-bromide-belladonna mixture. The authors state that none of these produced any genuine relief. Tried then in selected groups were injections of typhoid-paratyphoid vaccine, Sauer's vaccine, New York Board of Health "toxin vaccine", pertussis vaccine prepared by Bordet, injections of topagen soluble; nasal instillations of topagen, Krueger's vaccine, injections of convalescent serum, and injections of "hyperimmune" serum. Beneficial results were obtained only with the latter two methods, and then only when the serum was injected before the paroxysmal stage of the disease. Surprisingly the authors state that the various types of vaccines used "not only did not ameliorate the symptoms but actually produced curves above those of control cases," that is, a greater number of paroxysms and longer duration of the disease.

Because of the difficulties encountered in obtaining convalescent whooping cough serum, McGuinness, Bradford and Armstrong² experimented with the production and use of hyperimmune human whooping cough serum and concluded that the method was practical and definitely advantageous. Healthy male adults who had had whooping cough in childhood were given three courses of Sauer's vaccine at four-month intervals. One month after the last course the donors were bled, and they have continued to serve as donors at one- to two-month intervals while receiving eight cubic centimeter courses of Sauer's vaccine at four- to six-month intervals.

The most severe test to which the children were injected was in a group of 55 continuously exposed household contacts. The dose of serum employed was from ten to twenty cubic centimeters, depending upon the age of the infant. No disease appeared in 44 of these children, five developed a very mild attack, three a mild attack and three a moderate attack. Therapeutically the serum was employed in 100 infants and children, 51 of whom were six months of age or under. Excellent results were obtained in 32 cases, good results in 31 cases, moderate results in 20 cases, and questionable results in 14 cases. There were three deaths among the 100 treated cases, but all of these infants had pneumonia when therapy was started.

Iowa is fortunate in being one of the very few states where convalescent serum production is in practical and successful operation. The studies cited above, together with others of a similar nature, suggest that the time has arrived when serum therapy for the prophylaxis and ther-

apy of whooping cough might be actively engaged in by the modern practitioner.

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BUT THE GREATEST OF THESE

The physicians of the United States contribute millions to charity. They render service to the unfortunate without thought of recompense. In their relation to the layman they are, in all probability, more charitable than any other professional group. The physician's charity to the underprivileged classes is not merely that of generosity from a monetary standpoint, or rendering service without thought of fee. Regardless of the race, color, creed or financial status of the individual patient, it is to the family doctor that he turns for understanding, for kindness, for charity, for confession.

If the layman prompts a charitable response from the physician, why, in general, is the same physician so uncharitable to his fellow colleagues? Why is he so critical and so free to give voice to criticism? Why does he impugn the motives of his fellow practitioner when he is so understanding of the mistakes of the layman? Why is he frequently unkind and bitter to his professional brother, yet philosophical when provoked by a layman?

Probably the greatest source of unpleasantness between physicians is possession of patients. For some reason the physician has acquired the feeling that his patient is his chattel, and if his patient consults another physician, his chattel is stolen, and the battle is on. In squatter sovereignty "possession is nine points of the law," but in medicine possession can be retained only by virtue of the continued confidence of the patient in conscientious, skillful and understanding care. The question of medical ethics is frequently embarrassing to the patient, but regardless of ethics the patient is entitled to consult whatever physician he wishes, and his choice is based on confidence in the integrity and the ability of the individual doctor. In the oath of Hippocrates the physician swears by Apollo and Aesculapius to impart a knowledge of the art to disciples. The treatment accorded the young doctor who enters a community does not ordinarily comply with the Hippocratic oath, and charity and kindness do not characterize his reception.

The physicians of these United States have much to be grateful for. There is an abundance of work for everyone, and no one man can do all

the work in his particular community. Harmony and understanding would prevail if the doctor would emulate the example of Paul, who taught, "Charity is patient, is kind; charity envieth not, dealeth not perversely; is not puffed up, is not ambitious, seeketh not her own, is not provoked to anger, thinketh no evil; rejoiceth not in iniquity, but rejoiceth with the truth."

MATERNAL AND INFANT MORTALITY RATES IN IOWA

The 1938 maternal and infant mortality statistics, recently announced by the United States Bureau of Census, show that Iowa is doing its full share in the campaign to save mothers and their babies. For the entire country, the maternal mortality rate was 43.5 per 10,000 live births, a figure 11 per cent lower than that for 1937 and 23 per cent lower than that for 1936. On the other hand, the infant mortality rate was 51.0 per 1,000 live births, which is a reduction of six per cent from 1937 and 11 per cent from 1936. All in all, these 1938 rates are the lowest on record for the United States, and represent a saving of 816 mothers and a reduction of 3,229 infant deaths, as compared with 1937.

Iowa, as usual, is well up in the front rank and truly has an enviable record. The state's 1938 maternal mortality rate was 33 per 10,000 live births (as contrasted with 45 in 1937 and 46 in 1936) the same as that reported for California, Montana and Washington. These states are tied for ninth place in the national standing. The lowest rate reported was 24 for North Dakota. Among our neighboring states, only Minnesota, with 28, and Wisconsin, with 29, had better records. The 144 maternal deaths in Iowa by no means represent an irreducible minimum; there is still good reason for further efforts and for the hope that future years will record even fewer fatalities.

The 1938 infant mortality rate for Iowa was 41 per 1,000 live births, as contrasted with 44 in 1937, and 48 in 1936. Iowa was tied with Illinois and New York for eighth place. The lowest record was attained by Connecticut and Nebraska with 36 deaths per 1,000 live births. During the year there were 1,752 deaths in Iowa of children under one year of age. Although a large percentage of these fatalities are due to prematurity, malformations and birth injuries, there is obviously still a fine opportunity for improvement.

By and large, the figures constitute eloquent evidence of the cumulative effects of public education in the need for greater protection of moth-

erhood and infancy as carried on by the medical organizations of the state—the State Department of Health, the Iowa State Medical Society, and above all, the practicing physicians who carry the final and complete responsibility.

HOSPITAL INSURANCE IN IOWA*

Hospital Service of Iowa, Incorporated, the non-profit hospital service plan in whose formation the Iowa State Medical Society has taken an active part, is now getting well started in its work. After a long period of studying other similar organizations, the officials of the Iowa company completed the contract to be issued by this plan, and the first policy was issued about December 1, 1939. In order to insure as rapid a start as possible, it was thought best to concentrate all efforts during the first few months to developing the field in Des Moines.

At the time this report is published there are approximately 2,000 individuals covered by the contracts issued. When the hospitals were working under the previous mutual insurance type of plan it was difficult to obtain the opportunity to explain the plan to the employees of the larger industries in Des Moines. With the present plan, which is not an insurance company but a non-profit community benefit type of organization, the representatives of Hospital Service are receiving the hearty cooperation of employers and employees in almost every organization approached. Over 700 people in one of the largest retail stores in Des Moines have enrolled during the last month, and several other large groups are now being contacted.

As was explained in this column a few months ago, the officers of the plan are anxious to enroll as many physicians as possible. The Polk County Medical Society has formed a unit, through which the members may enroll; they may also enroll their families and those who are employed in their offices as nurses and secretaries. Although the Polk County Medical Society unit is not yet completed there are already more than 100 individuals covered in that group. Any county medical society which desires to do so may write the company and information will be sent, so that the physicians in any community may avail themselves of this protection. The support of the medical profession in this manner will be of great value in presenting the service plan to employers and employees in the various communities as they are organized.

Requests are being received from other areas in the state, asking when the service will be made

available to them. Since the Des Moines development is proceeding so satisfactorily, the board of directors discussed this matter in detail at the February meeting. In the near future the plan will be extended into several of the larger communities of the state. This expansion will necessitate the employment of additional personnel in enrollment work. These men will receive training under the enrollment manager and gain experience through helping with the sales campaign in Des Moines, after which they can be sent to develop the plan in other portions of the state.

Rural participation in this type of hospital service plan has presented some difficulties. Because of the factors involved in the risks assumed in enrolling individuals as members, and the extremely high costs of collecting the small premium charged from the contract holder as an individual, it has been deemed advisable to sell contracts only to groups. The organization of these groups in rural areas, and the provisions for collection of the monthly premium by some local individual or firm, are difficult problems. Contacts have been made with the Farm Bureau, some will be made with the Grange and the Farmers' Union, in the hope that a method may be developed by which hospital plans may be made available to members through their organizations. Such plans are being worked out now in Missouri, and are in actual operation in several counties. In some communities the plan has been taken up as a community project. A campaign, with meetings held in schoolhouses and churches, and a house to house canvass made by voluntary workers, have served to inform the entire community of the benefits of this insurance. Those who desired to enroll have been accepted as a community group and the collection of the monthly payment has been undertaken as a community service by the local bank. Such a plan may be worked out and made available to smaller communities where there is no major industry and where the county farm organization does not adequately cover the population. The desire of the officers of Hospital Service is to make the service available to the largest possible number of the people of the state, as rapidly as circumstances will justify the expansion.

FOURTH ANNUAL CAMPAIGN OF CANCER EDUCATION

Four years ago a small group of physicians, research workers, and club women launched the Women's Field Army of the American Society for the Control of Cancer. Its goal was to reduce cancer mortality rates and to arouse the interest

*From the Medical Economics Committee.

of men and women everywhere in this disease and the methods and facilities available in their communities for treating and controlling it. It has been estimated that between one-third and one-half of those who now die, could and should be saved by early diagnosis and prompt treatment. The growth of the Women's Field Army has been rapid. Divisions are now underway in forty-six states; cancer information centers, local units of the Army, have been established in more than half the counties of the country. Cancer control is receiving more attention than ever before.

A beginning has been made, but only a beginning in this peacetime war. Approximately 150,000 men, women and children were destroyed by cancer in 1939. The needs in the field are great: more clinics, more funds for research, more facilities for indigent patients, above all, more education for the general public. Working under the supervision of physicians and other experts, women are the leaders and organizers of the fight against cancer. However, a paradox of this complex disease is that we cannot leave its control to leaders, to research workers or medical men. The Women's Field Army, now preparing for its Fourth Annual Campaign to be held during the month of April, is stressing the following three measures in its effort to carry this important message to the lay public:

1. Have a comprehensive physical examination once a year, however well one feels. Women over thirty-five years of age should have what the American Society for the Control of Cancer calls the B.P. examination, covering the breast and pelvic areas, semi-annually.

2. Memorize the cancer danger signals, early and usually painless symptoms which may indicate the presence of cancer, and should always indicate a visit to a physician. They are any persistent lump or thickening, particularly in the breast; any irregular bleeding or discharge from any body opening; any persistent and unexplained indigestion, any sore which does not heal normally, especially about the tongue, mouth or lips; any sudden change in the form or rate of growth of a mole or wart.

3. Enlist in the Women's Field Army in April, set aside by Special Act of Congress as Cancer Control Month, and so help the Army carry on its work of education to save lives.

These points present valuable information, and are measures which can be subscribed to by every physician. The enlistment from the lay public in Iowa should be a large one, and that from the medical profession should be one hundred per cent.

FINNISH RELIEF FUND

The JOURNAL has received the following communication from the director of the medical division, Finnish Relief Fund, Inc., with the request that we acquaint the members of the Iowa State Medical Society with these facts. We are glad to cooperate in this work, and believe many of our members will want to take advantage of this opportunity to assist a courageous and unfortunate country.

The Finnish Relief Fund, Inc., is headed by Mr. Herbert Hoover, and approved by the Finnish Minister in Washington, D. C., His Excellency Hjalmar Procopé. Its purpose is to accept for the Finnish people and transmit to Finland any funds contributed for this cause by the American people. Contributions, unless specifically intended to be used for war material, will be used for food and clothing for the Finnish civilian population.

Members of the American Medical Association are the only doctors who will be asked to contribute to this fund. It is hoped that the profession will respond as generously as possible. No money is deducted for expenses from any contribution made to this fund, and every dollar donated arrives in Finland worth one hundred cents. No salaries are paid and no financial remunerations are made to officers on duty with the Finnish Relief Fund. Expert auditors make a daily checkup of the donations acquired and chart the results.

The national chairman of the medical division of the professional groups of the Finnish Relief Fund, Inc., is Dr. John Frederick Erdmann of New York. The executive director of the medical division is Dr. Kerwin W. Kinard who has offices at fund headquarters. All checks should be made payable to the Finnish Relief Fund, Inc., and sent to the Medical Division of the Finnish Relief Fund, Inc., 420 Lexington Avenue, New York, New York.

A NEW MEDICAL JOURNAL

The year 1940 witnessed the appearance of Volume I, Number 1 of the Journal of the Medical Society of the State of North Carolina. The editor-in-chief of this new publication is Dr. Wingate M. Johnson, of Winston-Salem, North Carolina, a gifted writer, and for some time, a member of the House of Delegates of the American Medical Association. Business affairs of the journal will be administered by Dr. T. W. M. Long of Roanoke Rapids, secretary of the Medical Society of North Carolina.

January and February numbers of this new journal have already been issued. The general plan is that followed by many other state medical journals; this is, the front section is reserved for scientific articles. Editorials constitute the middle portion, with news notes, society activities, case reports and bulletins, completing the volume. One section is devoted to news of the Woman's Auxiliary.

The Journal of the Iowa State Medical Society is happy to take this occasion to welcome this newcomer in the field of medical journalism, and to extend most cordial greetings and best wishes to its officary.

The Pathology of Chronic or Recurrent Appendicitis*

JAMES E. KAHLER, M.D., Des Moines

Pathologist, Iowa Methodist Hospital

Ever since appendectomy has become a common procedure, appendices have been removed which do not appear acutely or subacutely inflamed. These appendices may be divided into three groups: those in which operation or subsequent clinical course indicates that the disease manifestations were due to some extra-appendiceal lesion; those in which appendectomy does not relieve the symptoms; and finally, the group labeled "chronic appendicitis" or "recurrent appendicitis." A great deal of debate has centered about this latter group. It is not the purpose of this editorial to enter into this discussion, but rather to describe briefly the changes which may be found if these tissues are carefully examined.

Pathogenesis: The regressive changes which form the basis of symptoms in chronic or recurrent appendicitis usually result from the healing of an acute process which has not progressed to gangrene and perforation.

Pathology: The lesions will be described under the anatomic subdivisions of the organ.

Mucosa. If the acute episode begins to regress only after pressure atrophy of the mucosa is complete, granulation tissue from the submucosa will obliterate the entire lumen, since the mucosa will be unable to regenerate. Healing of such an appendix results in a solid fibrous cord. If, however, mucosal necrosis is not complete, the granulation tissue filling the defects of the mucosa will fill only portions of the lumen resulting in stenoses; or there may be fibrous septa dividing the lumen into locules resulting, in some instances, in mucocoeles. Obliteration of the lumen by stenosis or by polypoid hyperplasia of the mucosa may provide mechanical obstruction and initiate an acute suppurative exacerbation. On the other hand, the stenosis may cause a more gradual fecal accumulation which results in compression atrophy of all the coats of the organ. Concomitant with this pressure atrophy, Steinberg has described indolent mucosal ulcers which may gradually penetrate the walls of the organ. Attempts to expel fecoliths may result in the formation of thin-walled diverticuli. Less readily demonstrable mucosal changes occur in relation to the nerve elements (as have been described by Masson) resulting in the formation of neuromas and carcinoids. The lymphoid tissue of the mucosa frequently

exhibits hyperplasia and, in the enlarged secondary centers of the follicles, active phagocytosis of nuclear fragments.

Submucosa. With subsidence of an acute appendicitis the submucosal exudate first loses its neutrophiles which are replaced by eosinophiles and later by lymphocytes, plasma cells and fibroblasts. In time, the submucosa is thickened by fibrous tissue in which more or less adipose tissue is deposited.

Muscularis. The most easily appreciated changes are fibrosis, foci of lymphocytes among the muscle bundles, and lymphocytic infiltration of the nervous plexuses with degenerative changes in the ganglion cell nuclei. Less commonly recognized changes are the presence of abnormal muscle fiber whorls, aberrant muscle fibers, suppression of muscle layers, supernumerary muscle coats and Masson's musculonervous hyperplasia.

Serosa. The serosa is frequently the last portion of the appendix to show complete subsidence after an acute inflammatory process. In recurrent or chronic lesions it may show increased vascularity, fibrosis, lymphocytic foci, irregular areas of thickening and definite fibrous adhesions.

In addition to the above changes, one may find conditions productive of symptoms referable to the appendix, which may only be appreciated with the organ in situ, such as anomalous anatomic position, constricting adhesions, kinks, etc.

The subject of obliteration of the appendiceal lumen is difficult to evaluate. On the one hand is the knowledge that the obliteration may be definitely attributable to healing inflammatory processes; on the other hand is the fact that the organ is a vestigial one, prone to regressive changes. Obliteration of the appendix has been observed in fetuses.

The lesions which have been described here, and others which may have been overlooked, may be present singly or in various combinations. Some of the changes may appear minimal; for example, those described in the muscle layer. Yet it has been shown that this muscle has lost the double-refractility which is a characteristic of normal appendiceal muscle, and responds abnormally to faradic stimulation. However minimal these changes may be, they contribute toward making the "chronic appendix" a constant source of danger as long as it remains within the body. At least one case has been recorded in the literature in which a "chronic appendicitis" had initiated pylephlebitis.

*Editor's Note: This editorial has been prepared upon request. Other articles on the pathology of various disease processes will be found in previous issues.

SPEAKERS BUREAU ACTIVITIES

POSTGRADUATE COURSES

The Speakers Bureau will open a ten weeks' postgraduate extension course in Atlantic, Friday, March 15, for the physicians of Cass County and vicinity. The series of lectures which has been arranged is as follows:

March 15—Round Table Discussion on Prematurity From the Obstetric and Pediatric Standpoint—Addison W. Brown, M.D., Des Moines; Arnold M. Smythe, M.D., Des Moines.

March 22—Low Back Pain—Lewis M. Overton, M.D., Des Moines.

March 29—Common Skin Diseases—Ruben Nomland, M.D., professor of dermatology and syphilology, College of Medicine, State University of Iowa, Iowa City.

April 5—Heart Disease—Daniel J. Glomset, M.D., Des Moines.

April 12—Common Diseases of the Eye—John H. Matheson, M.D., Des Moines.

April 19—Occiput Posterior—Manikin Demonstration—John H. Randall, M.D., associate professor of obstetrics and gynecology, College of Medicine, State University of Iowa, Iowa City.

April 26—Common Neurological Disorders—Ernest Kelley, M.D., associate professor of nervous and mental diseases, Creighton University School of Medicine, Omaha, Nebraska.

May 10—Common Urological Conditions—Gerald V. Caughlan, M.D., Council Bluffs.

May 17—Common Diseases of Children—George E. Robertson, M.D., Omaha.

May 24—Diseases of the Blood—Colored Photomicrographs—Diedrich J. Haines, M.D., Des Moines; Lee R. Rosebrook, M.D., Ames.

The meetings will be held in the Whitney Hotel at 7:00 p. m. Enrollment for the course is open to all physicians in Cass County and the surrounding counties, and the registration fee of \$5.00 will be payable to Dr. Dan S. Egbert of Atlantic, local chairman of the course, at the opening meeting.

The schedule of spring postgraduate course programs for the Marshall County Medical Society has been completed by the Speakers Bureau. The dates, subjects and lecturers are as follows:

April 2—Local and General Anesthesia in Obstetrics and Major Surgery—Stuart C. Cullen, M.D., associate in anesthesia, College of Medicine, State University of Iowa, Iowa City.

May 7—Hormones and Gynecology in the Office—August A. Werner, M.D., assistant professor of internal medicine, St. Louis University School of Medicine, St. Louis, Missouri.

June 4—Diagnosis and Treatment of Some Diseases of the Blood and Blood Forming Organs—Raphael Isaacs, M.D., associate professor of internal medicine, University of Michigan Medical School, Ann Arbor, Michigan.

The Marshall County Medical Society cordially invites the physicians in surrounding counties to attend these meetings. Dinner will be served at the Hotel Tallcorn at 6:00 p. m., and the two hour lecture period will follow. Dr. Grove W. Harris of Marshalltown is in charge of local arrangements, and dinner reservations should be made with him a few days prior to the meeting dates. The charge for dinner is \$1.00.

The Boone and Story County Medical Societies will entertain the following speakers for their spring programs as arranged by the Speakers Bureau on the postgraduate course schedule:

Ames, March 28—Intestinal Obstruction—Thomas G. Orr, M.D., Kansas City.

Boone, April 18—Fractures of the Elbow—Robert D. Schrock, M.D., professor of orthopedic surgery, University of Nebraska, College of Medicine, Omaha, Nebraska.

Ames, May 8—Hormones and Gynecology in the Office—August A. Werner, M.D., assistant professor of internal medicine, St. Louis University School of Medicine, St. Louis, Missouri.

Boone, July 19—Peripheral Vascular Disease—Geza de Takats, M.D., associate professor of surgery, University of Illinois, College of Medicine, Chicago, Illinois.

The Ames meetings will be held at the Sheldon-Munn Hotel with dinner at 6:30 p. m.; the Holst Hotel will be the site of the meetings in Boone, and members will convene at the same hour. Physicians who plan to attend should notify the local chairman, Dr. Ben T. Whitaker of Boone. The charge for dinner will be sixty-five cents.

ROUND TABLE DISCUSSIONS

The Sac County Medical Society was host to a round table conference on "Prematurity From the Obstetric and Pediatric Standpoint" at its meeting Thursday, February 29, in Lake View. Dr. Addison W. Brown and Dr. Arnold M. Smythe of Des Moines conducted the program. These two physicians will also present the scientific program for the Hancock-Winnebagos Medical Society, Tuesday, March 5, in Garner. The members of the Dickinson, Emmet and Clay County Medical Societies will enjoy the same program Thursday, March 21, in Spirit Lake.

Round table discussions will also be presented before the members of Monona, Wright and Floyd Counties during March and April. Dr. Brown and Dr. Smythe will address the latter groups in Clarion and Charles City, respectively, while Dr. Jack V. Treynor and Dr. Robert M. Collins of Council Bluffs will conduct the meeting for the former society in Onawa. Dates for these programs will appear in an early issue of the JOURNAL.

WOMAN'S AUXILIARY NEWS

MRS. FRED MOORE, *Chairman of Press and Publicity Committee*
3407 Lincoln Place Drive, Des Moines

President—MRS. EDWARD A. HANSKE, Bellevue

President Elect—MRS. ELBERT T. WARREN, Stuart

Secretary—MRS. WALTER J. CONNELL, Dubuque

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

PRESCHOOL MENTAL HYGIENE

The parents who are fortunate in having a child to raise are naturally desirous of making the new member of their family a healthy and normal individual. The wisdom of following a daily schedule of prescribed feedings, baths and naps, to insure the physical well-being of the infant, is soon apparent. Almost at once the child senses how easy it is to get attention from his mother by crying. His every want is taken care of, and soon he responds with a smile and eagerness to notice toys and play with all objects within reach.

A play-pen is an excellent place to put the baby so that he may be free to enjoy his toys, unhindered by relatives and friends of the household who are usually so keen to pick him up, thus undoing a well-ordered daily routine. Intelligence and loving care shown by the parents greatly add to the physical and mental well-being of the child.

When the child is learning to creep and later to walk, his existence is characterized by constant activity. In this muscle-age his development seems to be shown mainly by doing things.

Wise parents will refuse to use baby-talk which hampers the child in his speech because of indistinguishable words and their meanings. The child's mind at an early age is very plastic, and his formation of habits throughout life will date back to his first years.

Thumb-sucking and body elimination are the two most natural habits of childhood. When the mother can appeal to her youngster by speaking of these habits and then in turn offer some tangible gift, a new toy or candy, she will, in time receive cooperation from her child. A merit system is very useful and if the efforts shown by the child are creditable a reward should be given. Arguments and discussions of the child's discipline should never be carried on in his presence, because all too soon he will realize his importance and capitalize on having a spot in the limelight. The practice of pointing out the child's mistakes and giving punishment in a just manner will make him realize the extent of the offense.

Association with other children of similar age will be a great boon toward teaching an only child to give and take. He will learn to share his toys, and compet-

ing with others will curb him of selfishness and teach him the rudiments of fair play.

The emotions of fear, anger and jealousy are present in any normal child, and the extent to which these reactions are allowed to run depends almost entirely on the behavior and attitude of the parents and any other members of the household.

Mrs. Dwight C. Wirtz

Polk County

Mrs. Robert J. Porter and Mrs. Donald H. Kast entertained at a tea Tuesday, February 27, at the former's home, 1350 Park Avenue, in Des Moines. Guests were members of the telephone and reservation committees of the Woman's Auxiliary to the Polk County Medical Society.

Pottawattamie County

Members of the Woman's Auxiliary to the Pottawattamie County Medical Society entertained their husbands at a dinner party, Monday, February 26, at the home of Dr. and Mrs. Grant Augustine in Council Bluffs. Covers were laid for forty-two. In addition to the dinner and bridge, a short business meeting was held to elect officers for the current year. Mrs. A. A. Robertson was named president to succeed Mrs. I. Sternhill. Other officers are Mrs. Arnold L. Jensen, vice president; Mrs. J. M. Moskovitz, secretary; and Mrs. C. V. Edwards, treasurer.

SPEAKERS BUREAU RADIO SCHEDULE

WSUI—Tuesdays at 4:00 p. m.

WOI—Wednesdays at 3:45 p. m.

March 12 Bronchitis, Chelsea D. Gibson, M.D.

March 19 The Blood, Diedrich J. Haines, M.D.

March 26 Obesity, Herbert N. Boden, M.D.

April 2 Diet in Health, John F. Veltman, M.D.

April 9 The Nervous Breakdown,

John R. Parish, M.D.

SOCIETY PROCEEDINGS

Allamakee County

The annual election of officers for the Allamakee County Medical Society was held Thursday, January 25, in Waukon, with the following results: Dr. F. W. Ernst of New Albin, president; Dr. C. W. Rominger of Waukon, vice president; and Dr. M. F. Kiesau of Postville, secretary and treasurer.

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held at the Fortner Hotel in Waverly, Monday, February 26. The program consisted of motion picture films on Roentgen Pelvimetry, Intracranial Injuries of the Newborn, and Resuscitation of the Newborn.

P. K. Graening, M.D., Secretary

Cerro Gordo County

The Cerro Gordo County Medical Society met in regular session Tuesday, February 13, at the Hotel Hanford in Mason City. Walter D. Abbott, M.D., of Des Moines, spoke on The Treatment of Low Back Pain. Another feature of the program was a motion picture film on Manipulative Treatment of Low Back Pain without Anesthesia, presented by Dr. F. A. Jostes of St. Louis, Missouri.

J. E. Houlahan, M.D., Secretary

Chickasaw County

Officers elected at a recent meeting of the Chickasaw County Medical Society are: Dr. Nicholas Schilling of New Hampton, president; Dr. Paul E. Gardner of New Hampton, vice president; Dr. E. M. Kennedy of New Hampton, secretary and treasurer; Dr. John McDannell of Nashua, delegate; and Dr. Schilling, alternate delegate.

Clayton County

The annual election of officers for the Clayton County Medical Society was held in Elkader, Thursday, February 8. Results were as follows: Dr. J. C. Brown of Littleport, president; Dr. B. B. Dwyer of Elkader, vice president; Dr. P. R. V. Hommel of Elkader, secretary and treasurer; Dr. W. J. McGrath of Elkader, delegate; and Dr. E. G. Kettelkamp of Monona, alternate delegate.

Grundy County

The Grundy County Medical Society held its annual meeting Friday, March 1, at the Columbia Hotel in Grundy Center. An evening of dinner and bridge

was enjoyed by members and their wives. The following officers were elected to serve during the year: Dr. W. O. McDowell of Grundy Center, president; Dr. E. A. Nash of Dike, vice president; Dr. J. E. Rose of Grundy Center, secretary and treasurer; Dr. M. H. Thielen of Grundy Center, delegate; and Dr. Nash, alternate delegate.

J. E. Rose, M.D., Secretary

Hardin County

Henry G. Decker, M.D., of Des Moines, was guest speaker for the Hardin County Medical Society at a meeting held Friday, February 23, at the Stevens Hotel in Iowa Falls. Dr. Decker presented an illustrated address on Migraine and Headache.

W. E. Marsh, M.D., Secretary

Jackson County

Dr. R. E. Dwyer of Preston was named president of the Jackson County Medical Society at the annual election of that organization held in Maquoketa, Tuesday, January 30. Other officers are: Dr. William Lowder of Maquoketa, vice president; Dr. E. V. Andrew of Maquoketa, secretary and treasurer; Dr. E. A. Hanske of Bellevue, delegate; and Dr. Dwyer, alternate delegate.

Jasper County

The Jasper County Medical Society met Tuesday, February 6, at the Skiff Memorial Hospital in Newton, for a dinner meeting which was addressed by Harold J. McCoy, M.D., of Des Moines, on Corneal Diseases of the Eye.

Johnson County

The regular monthly meeting of the Johnson County Medical Society was held Wednesday, February 7, at the Jefferson Hotel in Iowa City. William F. Mengert, M.D., of the University staff, furnished the scientific program of the evening with an address on Analgesia and Anesthesia in Obstetrics.

Linn County

The next meeting of the Linn County Medical Society will be held Thursday, March 28, at the Hotel Roosevelt in Cedar Rapids. George Morris Piersol, M.D., of Philadelphia, will address the group on Disease of the Coronary Arteries. Members of the profession are invited to attend.

T. Frank Hersch, M.D., Chairman
Program Committee

Madison County

Lewis M. Overton, M.D., of Des Moines, was the guest speaker at the regular monthly meeting of the Madison County Medical Society, held Monday, February 19, at the Winterset Hospital in Winterset. Dr. Overton spoke on The Treatment of Fractures, and also discussed convalescent care of infantile paralysis patients.

Evelyn M. Olson, M.D., Secretary

Mitchell County

The Mitchell County Medical Society met at the office of Dr. R. A. Culbertson in St. Ansgar, Tuesday, February 6. After a short business meeting, C. R. Harken, M.D., of Osceola, presented an unusually fine discussion and demonstration of Pathology and Fixation of Hip Fractures. Motion picture films on fractures furnished by the Iowa State Medical Society, and one on Hernioplasty, from Davis and Geck, completed the session. Mrs. Culbertson served lunch at the residence following the meeting.

R. A. Culbertson, M.D., Secretary

Pocahontas County

Albert A. Schultz, M.D., of Fort Dodge, addressed the Pocahontas County Medical Society, Friday, February 16, on The Modern Treatment of Pneumonia. The meeting was held at Fonda.

Sac County

The Sac County Medical Society held its monthly meeting at Lake View, Thursday, February 29. After a six-thirty dinner the group adjourned to the Community Hall where a round table discussion on Obstetrics and Pediatrics was held, with Addison W. Brown, M.D., and Arnold M. Smythe, M.D., both of Des Moines, leading the discussion. A number of doctors from surrounding counties helped to make the evening a success. The next meeting will be held in Sac City, Thursday, March 28, and the subject will be Electrocardiography.

H. N. Neu, M.D., Secretary

Scott County

H. D. Smith, M.D., of the State University of Iowa, College of Medicine, Iowa City, was the speaker of the evening at a meeting of the Scott County Medical Society, held in Davenport, Tuesday, February 6. Dr. Smith spoke on Vitamin K.

Tama County

The regular monthly meeting of the Tama County Medical Society, held Thursday, February 29, in Dy-sart, was addressed by A. J. Havlik, M.D., of Tama, on Tularemia. The meeting followed a six-thirty dinner.

Webster County

Members of the Webster County Medical Society met in regular session, Wednesday, February 28, at the Wakhonsa Hotel in Fort Dodge. Frederick W. Fitz, M.D., professor of medicine, Northwestern University Medical School, spoke on Metabolic Diseases.

It was announced at the business meeting that Dr. W. W. Bowen of Fort Dodge, had donated his medical library to Mercy Hospital, Fort Dodge, for the use of the medical profession. The library includes 850 volumes, and many of the journals are complete from their first numbers. A librarian will be placed in charge of the library which will be installed in a room especially equipped for the purpose. The staff of the hospital has arranged to continue the journals and add to the library.

A. S. McMillen, M.D., Secretary

**Iowa and Illinois Central
District Medical Association**

The quarterly spring meeting of the Iowa and Illinois Central District Medical Association will be held Thursday, March 28, at the New Harper House in Rock Island, Illinois. A short paper will be delivered by S. P. Durr, M.D., of Rock Island, on Difficulties in the Diagnosis of Empyema. Charles R. Austrian, M.D., associate professor of medicine at the Johns Hopkins University School of Medicine, Baltimore, will address the meeting on The Diagnosis and Treatment of Some Chronic Non-Tuberculous Pulmonary Infections. A dinner will be served at six-thirty preceding the session, and members of the profession are invited to attend.

James Dunn, M.D., Secretary

Iowa Pediatric Society

Members of the Iowa Pediatric Society were guests of the Department of Pediatrics, State University of Iowa, College of Medicine, at a meeting held Saturday, February 10, at the Children's Hospital in Iowa City. The program consisted of clinics, round table discussions and open forums on topics relating to the health of the infant and child. Dr. Morgan J. Foster of Cedar Rapids was elected president, and Dr. Arnold M. Smythe of Des Moines was named secretary and treasurer of the society.

Upper Des Moines Medical Association

The winter meeting of the Upper Des Moines Medical Association was held Thursday, February 29, at the Hotel Kermore in Emmetsburg, in conjunction with a session of members of the dental profession in the district. The following program was presented: Vincent's Infection, A. Paul Atkins, D.D.S., of Des Moines; Broncho-fusospirochetosis, M. F. Haygood, M.D., of Des Moines; and Slides and Films Demonstrating Oral Infections and Chemotherapy, O. E. Hoffman, D.D.S., Des Moines.

PERSONAL MENTION

Dr. Fred M. Smith, head of the department of internal medicine, State University of Iowa, College of Medicine, Iowa City, spoke on "Cardiac Therapy", before the New Orleans Graduate Medical Assembly, Wednesday, February 28.

Dr. Sterling J. Ritchey, who has practiced in Newton for the past three years, is leaving that locality and moving to Fort Snelling, Minnesota, where he has accepted an appointment as first lieutenant in the regular army medical corps. His practice will be taken by Dr. Roger M. Minkel, who comes to Newton from Swea City, where he has been practicing for six years.

Dr. H. E. Farnsworth of Storm Lake was guest speaker for the Kiwanis Club, Monday, February 5, at a meeting held at the Arlington Hotel in Sheldon. Dr. Farnsworth discussed the subject of underprivileged children.

Dr. J. O. Cook has left Madrid, after fifteen years of medical practice, for Bancroft, where he has accepted a position as head of the medical offices for a Civilian Conservation Camp.

Dr. Lester W. Kimberly, instructor in the department of dermatology, University of Iowa, College of Medicine, Iowa City, has located in Davenport, where he will enter the private practice of medicine. He will limit his practice to diseases of the skin.

Dr. R. M. Sorensen of the State Department of Health, Des Moines, presented an illustrated lecture on Venereal Diseases and Their Control, at a meeting of the Jasper County Council of P. T. A., held Tuesday, February 6, in Newton.

Dr. Herbert W. Anderson has located in Lennox, where he will enter the practice of medicine. Dr. Anderson was graduated from the State University of Iowa, College of Medicine, Iowa City, in 1936, and has been associated with the Jennie Edmundson Hospital in Council Bluffs since that time.

Dr. L. H. Schafer, formerly of Petersburg, Nebraska, has arrived in Oxford Junction, where he will continue in his profession. Dr. Schafer was graduated in 1925 from Creighton University School of Medicine, Omaha.

MARRIAGES

The marriage of Miss Irene Gray of Cedar Rapids and Dr. Charles S. Day of Cedar Rapids, took place Saturday, February 24, in Cedar Rapids. The bride is a graduate of St. Luke's Hospital Nurses' Training School. Dr. and Mrs. Day are making their home for the present at the Roosevelt Hotel in Cedar Rapids, where Dr. Day has been practicing for several years.

Announcement has been made of the marriage of Miss Edith Nelson, formerly of Cedar Rapids, and Dr. E. P. Russell of Burlington, which took place Wednesday, January 24, in Burlington. Mrs. Russell has been engaged as nursing supervisor of the surgical department in the University Hospital in Iowa City. Dr. and Mrs. Russell will live in Burlington where Dr. Russell has been practicing for the past eighteen months.

DEATH NOTICES

Langan, Joseph Clement, of Clinton, aged seventy, died February 7 of coronary thrombosis. He was graduated in 1891 from Rush Medical College, University of Chicago, and at the time of his death was a member of the Clinton County Medical Society.

McGuire, Clarence Ambrose, of Dubuque, aged fifty-two, died February 3 after a brief illness. He was graduated in 1909 from the St. Louis College of Physicians and Surgeons, and at the time of his death was a member of the Dubuque County Medical Society.

Winnett, Joseph Roderick, of Eldora, aged fifty-three, died February 8 after an extended illness. He was graduated in 1912 from Drake University College of Medicine, Des Moines, and at the time of his death was a member of the Hardin County Medical Society.

SCIENTIFIC PROGRAM OF THE
CHICAGO MEDICAL SOCIETY

Another special all-day scientific session, sponsored by the Chicago Medical Society, will be held Wednesday, March 20, 1940. The sessions will be at the University of Chicago, 950 East 59th Street, on the general subject of endocrinology.

9:20 A. M.—12:00 Noon

Comments on the Present Status of Endocrinology—A. J. Carlson, Ph.D.

The Rôle of Sex Hormones in the Development of the Reproduction Tract—Carl Moore, M.D.

The Physiology of the Prostate Gland and the Problem of Prostatic Hypertrophy—C. B. Huggins, M.D.

The Significance of the Urinary Excretion of Androgens and Estrogens in Health and Disease—Robert Coffman, M.D.

Endocrine and Psychiatric Aspects of Impotence—H. T. Carmichael, M.D.

2:00 P. M.—4:30 P. M.

Lipocic and the Problem of Fat Metabolism—L. R. Dragstedt, M.D.

Hibernation—Walter Hook, M.D.

The Posterior Lobe of the Hypophysis—E. M. K. Geiling, M.D.

Gonadotropic Therapy—M. E. Davis, M.D.

Adrenal Medullary Tumors—Alexander Brunswick, M.D.

Properties of Certain Steroid Hormones in Man—A. T. Kenyon, M.D.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

Early American Medical Journals Available in the Iowa State Medical Library

THE ECLECTIC REPERTORY AND ANALYTICAL REVIEW

JEANNETTE DEAN-THROCKMORTON, Ph.B., A.M., M.D.,

Des Moines, Iowa

(Concluded from last month)

Volume VII, 1817. Dr. C. Brodie, Esq., F.R.S., assistant surgeon to St. George's Hospital and lecturer on surgery, was author of an article on Observations on Treatment of Varicose Veins of the Legs. Samuel James Jackson, M.D., wrote a letter On the Puerpural Fever of Northumberland, in which he stated his anxiety regarding the mode of treatment, which so far had proved very unsuccessful. He concluded his letter, "I have no books upon this subject, but the edition of Burns, Leake, Denman and White of Manchester." The mention of John Leake and Charles White of Manchester recalls Semmelweis of Hungary and Dr. Oliver Wendell Holmes; around the two latter a violent storm of opposition broke twenty-five years later when they advanced the theory of the contagiousness of puerpural fever. Scarpa's Improved Operation for Aneurism appeared as a reprint from the London Medical and Physical Journal.

Ephraim McDowell, M.D., of Danville, Kentucky, presented Three Cases of Extirpation of Diseased Ovaria. On page 242 of Volume VII appeared a world famous essay, so brief that it occupies only three small pages. Without flourish or circumlocution it begins simply, "In December, 1809, I was called to see a Mrs. Crawford . . ." Eight years had passed since that historic visit, but this was Dr. McDowell's first written report upon the subject. Modestly and simply he tells of his operation upon Mrs. Jane Crawford and his equally successful ovariectomies upon two negro women. These three small pages gave a new stimulation to gynecology, opened up a new world in abdominal surgery, established Ephraim

McDowell as the Father of Ovariectomy and conferred immortality upon the Eclectic Repertory and Analytical Review.

Volume VIII, 1818. Dr. von Embden of Hamburg, wrote An Historical Sketch of Medicine in the Russian Empire. Ezra Michener presented a Case of Diseased Ovary. In spite of diuretics, bleeding and blisters, the case terminated fatally, with the autopsy showing an ovarian cyst twelve by nine inches, weighing eight pounds and ten ounces. While praising Dr. McDowell's temerity in daring to open the abdomen, he questioned the data given by McDowell by saying, "Far be it from me to arraign the probity of Dr. McDowell," and proceeded to insinuate that the ovarian cyst was not removed, concluding his paper with these words, "The utter impossibility of our ever being able to ascertain with certainty the real nature of those internal diseases, . . . the necessary danger of an operation under the most favorable circumstances, will be likely to prove an insurmountable barrier to the use of the knife in their removal." McDowell truly could have said, "These be times that try men's souls".

Dr. Caspar Wistar delivered An Eulogium on Dr. William Shippen before the College of Physicians of Philadelphia, in March, 1809. Henry Holland, M.D., F.R.S., discussed Pellagra, a Disease prevailing in Lombardy. John Bard, M.D., reported A Case of Extra-Uterine Foetus. Following a normal pregnancy, the extra-uterine pregnancy occurred, remaining as a large tumour on the right side of the abdomen. During the puerperium of a second normal delivery with living child, the extra-uterine pregnancy suppurated

through the abdominal wall, with parts of a full-time infant extruded piece-meal from an abscess sac, followed by recovery.

Volume IX, 1819. Valentine Mott, M.D., professor of surgery in the University of New York, wrote *Reflections on Securing in a Ligature the Arteria Innominata*, to which was added a Case in which this Artery was tied by a Surgical Operation. This famous case is world renowned, although ulceration and sloughing followed in the deep narrow wound, and the patient died on the twenty-sixth day following operation. Dr. Mott concluded his essay thus, "The practicability and propriety of the operation appear to me to be satisfactorily established by this case; and although I feel a regret, that none know who have not performed surgical operations, in the fatal termination of it, and especially after the high and just expectations of recovery which it exhibited; yet I am happy in the reflection, as it is the only time that it has been performed, that it is the bearer of a message to Surgery, containing new and important results." The essay is illustrated by two wood cuts, a departure from the customary expensive steel engravings.

M. Percy divided *The Dangers of Dissection* into two classes: those resulting from putrid gases acting on the system generally, and those from inoculation of a septic principle in wounds. Among other incidents he mentioned Couvisart, "This distinguished ornament of the profession pricked his finger while inspecting a dead body in 1786. Presently the whole arm swelled to an enormous size. . . . Finally, however, the skill of Desault (whose friendship for the patient did not arrest the salutary course of the knife) . . . triumphed over the effects of the poison, and restored to health our beloved colleague."

W. Newman, Esq., wrote *An Essay on the Symptoms, Causes, and Treatment, of Inversio Uteri*; with a History of the Successful Extirpation of that Organ, during the Chronic Stage of the Disease. This was accomplished by placing a ligature of strong silk as high as possible upon the neck of the tumor, on April 13, after which the ligature was tightened on successive days until it became detached on May 6. He concluded with "this woman is now living and well".

T. Parkinson, M.D., in an article on cancer, gave special consideration to cancer of the breast, stating that "various methods of treatment have been recommended, approved, adopted, and all in their turns, rejected, excepting those which have as their bases the total removal of diseased parts from those which are sound. The comparative merits of the knife and caustic are pretty fully determined, and properly, in favor of the former."

His concluding sentence was "Reduce the general animal and vital actions very low; and then destroy the diseased parts by intense cold, so long continued as to prevent re-action." One is reminded that truly there is nothing new under the sun.

Ephraim McDowell, M.D., authored an article on *Observations on Diseased Ovaria*. In a seven page letter dated September, 1819, Dr. McDowell answered Dr. Michener's skepticism by giving details of his famous operations and adding two additional cases upon which he had operated successfully. His courteous reply to Dr. Michener, his restraint and calmness in the face of insinuated untruthfulness, the five cases of ovariectomy with patients surviving, the description of the tumors removed of which one must have been a dermoid cyst since it contained hair and a single bone, cannot but arouse our admiration for the man, as well as for his renowned operation.

Volume X, 1820. In this, the concluding volume, mention was made of Dr. Laennec, a physician in Paris, who presented before the Royal Academy of Sciences, a mode of examining the thorax by means of the communication of sound. For this he employed a tube spread out at one end like a funnel. One end of the instrument was applied to different parts of the thorax, and the ear of the physician was applied to the other end. For a number of years, this new instrument, called a stethoscope, was considered a new fangled toy and not worthy of consideration or use by serious minded members of the medical profession. It was left for Sir John Dominic Corrigan of Dublin, nine years later, to urge its use in the examination of heart diseases, which he did in an essay published in the *Lancet*, February, 1829, page 586, bearing the title, *Aneurism of the Aorta; Singular Pulsation of the Arteries; Necessity of the Employment of the Stethoscope*. This rare essay is likewise in the archives of the Iowa State Medical Library.

OBITUARY

Early medical graduates of the Keokuk medical schools will be interested to learn that the Keokuk Gate City of February 22, 1940, contained the death notice of Mrs. J. C. Hughes, Jr., widow of the former dean of the old College of Physicians and Surgeons of Keokuk. It will be recalled that Dr. J. C. Hughes, Jr., succeeded his father, Dr. J. C. Hughes, former dean and professor of surgery of the College of Physicians and Surgeons of Keokuk. Mrs. J. C. Hughes, Jr., was born in Midway, Kentucky, January 17, 1852, and came to Keokuk soon after her marriage in 1880. She thus came in touch with the early history of medical education in Iowa, particularly its development in Keokuk.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

TEXTBOOK OF NERVOUS DISEASES—By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.

OBSTETRICAL PRACTICE—By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.

THE NEWER KNOWLEDGE OF NUTRITION—By E. V. McCollum, Ph.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University. Fifth edition, entirely rewritten, illustrated. The Macmillan Company, New York, 1939. Price, \$4.50.

SYNOPSIS OF PEDIATRICS—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.

POPULATION RACE AND EUGENICS—By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by author, 1939. Price, \$3.00.

TUMORS OF THE HANDS AND FEET—By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.

CANCER OF THE LARYNX—By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.

SCLEROSING THERAPY—Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.

THE NEW INTERNATIONAL CLINICS, VOLUME IV, NEW SERIES TWO. Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.

THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART—By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.

THE 1939 YEAR BOOK OF GENERAL SURGERY—Edited by Everts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.

LOVE PROBLEMS OF ADOLESCENCE—By Oliver M. Butterfield, Ph.D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

BOOK REVIEWS

PRINCIPLES AND PRACTICE OF OPHTHALMIC SURGERY

By Edmund B. Spaeth, M.D., associate professor of ophthalmology in the Graduate School of Medicine, University of Pennsylvania. Lea and Febiger, Philadelphia, 1939. Price, \$10.00.

This is a very thorough comprehensive book of ophthalmic surgery. New and old procedures with indications for their use are excellently and understandingly described. Especially outstanding are the chapters on corneal transplants and foreign body localization. The contents of this volume are directed entirely to the eye man, who will find the work a valuable aid in his practice. J. H. M.

ences of the author are given in the choice of treatment. Complicated methods of management are outside the scope of this text, but an extensive bibliography affords adequate references for further considerations.

The book is intended primarily for use by those who see the fracture first. It can also be recommended for those who have forgotten that simple methods of treatment accomplish good results in the majority of fracture cases. D. N. G.

FRACTURES

By Paul B. Magnuson, M.D., associate professor of surgery, Northwestern University Medical School, Chicago. Third edition, revised and enlarged. J. B. Lippincott Company, Philadelphia, 1939. Price, \$5.00.

The third edition of this volume, if given only casual consideration, may appear impotent if compared to some other texts on this subject. However, a careful intelligent reading of the subject matter soon dispels this erroneous impression.

The author has had a vast experience with fractures, and the book reflects his knowledge of basic fundamental principles applied to simple and efficient methods of fracture management. The subject matter is condensed and precise. Personal pref-

MICROBIOLOGY AND PATHOLOGY

By Charles F. Carter, M.D., director of Carter's Clinical Laboratory, Dallas, Texas. Second edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.25.

The author of this volume is to be commended for combining so successfully these two subjects. The book should find favor as a text for student nurses and as a reference book for graduate nurses. It would be a valuable addition to any hospital ward library.

The review and test questions at the end of each chapter are comprehensive and should be of considerable help to the student. However, it is noted that the now widely used true-false and completion type test questions were omitted from the section on microbiology but appear in the section on pathology. Does the author feel they are not adaptable to the subject?

The normal elements, cell counts and percentages of the blood, spinal fluid and urine are given as they are discussed, but this reviewer believes the addition

of one table showing all of these would be of distinct value in facilitating learning for the student. In the chapter on collection of specimens for bacteriologic examination, the author states that smears for gonococci in the female should be made from the cervix and urethra. Why, since it is important for the student to learn the difference as well as the reason for the difference, in taking smears for gonococci in the female child, do so few authors fail to stress or even mention the matter, but leave it to the special subject of pediatric nursing? It is sufficiently important to bear repetition. Another omission is noted—the subject of maggots. The rôle of flies as carriers of disease-causing organisms is duly emphasized. While the occurrence of maggots in wounds is becoming less frequent due to improved hygiene, students should know of them and their effect upon infected wounds.

The book as a whole is excellent, and the above mentioned omissions are too slight to detract seriously from the value of it as a text. J. M. F. (R.N.)

MANUAL FOR DIABETIC PATIENTS

By W. D. Sansum, M.D., The Sansum Clinic, Santa Barbara, California. The Macmillan Company, New York, 1939. Price, \$3.25.

This manual is designed as a reference and guide book for Dr. Sansum's patients to supplement individual and class instruction on diabetes.

The author now uses the term adequate carbohydrate diet rather than the high carbohydrate diet. The history, physiology, diet and insulin therapy of diabetes are discussed in the layman's language. If the chapters on ketosis and complications were read and studied by diabetic patients and physicians this reviewer predicts that the death rate from coma would decline rapidly.

Part II includes the composition, planning substitution of the diet, and many recipes. Dr. Sansum believes, and rightly so, that education of diabetic patients enables them to live and enjoy a normal life. This book furnishes them with that education, and it can be recommended for that purpose. E. B. W.

TEXTBOOK OF NERVOUS DISEASES

By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.

The translation of this volume is excellent and easily readable. Thirty chapters of a detailed description of every phase in diseases of the nervous

system are included. Each chapter is an outstanding discussion of the subject at hand. The bibliography is large and complete. After a comprehensive description of what is known of the etiology, pathology, symptoms, differential diagnosis, and prognosis of each disease, the treatment, as outlined by Bing, is thoroughly presented. The use and action of various drugs on the nervous system are criticized and evaluated, and the author deletes many drugs which have heretofore been used empirically.

The index is broad and exhaustive, making the text an easy reference for the busy practitioner. Since every branch of medicine is so intimately connected with the nervous system, this text should merit increasing popularity by students as well as physicians, specialists or general practitioners, and should be in the library of all physicians. E. B. W.

CANCER OF THE LARYNX

By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.

This is an entirely new book by the authors of our best works on laryngology. Especially noteworthy of the many illustrations are the fifty colored plates made by the senior author who is an artist of note as well as an outstanding authority on diseases of the larynx. It is the first and only work of its kind which has been published in the United States.

The book presents operative and non-operative procedures in the minutest details, and stresses particularly the early diagnosis and the possible errors in diagnosis. Step by step procedures are given and profusely illustrated for indirect and direct laryngoscopic examination and biopsy and for laryngofissure and laryngectomy. In addition to describing their own technic, the authors also present the modifications of other authorities. The chapter on carcinoma of the larynx is interesting from a historical standpoint, showing the evolution and development of the various types of operative procedures. The postoperative care after laryngectomy, the bolstering of the patient's morale, re-education and development of speech, are most ably covered. Once again the authors stress the fact that all chronic hoarseness should be regarded as malignant until proved otherwise.

As a diagnostic and working manual and as a blue print for operative procedures, this volume is unsurpassed. The possible errors, both in diagnosis and operative technic, are described, and clear-cut methods are indicated whereby they can be avoided. The drawings simplify the teaching of the technic most adequately. This book should be in the possession of each otolaryngologist, and be available as a ready reference book for the surgeon and the general practitioner. J. A. D.



Felix A. Hennessy, M.D.

President

Iowa State Medical Society

1939-1940

The JOURNAL

of the

Iowa State Medical Society

VOL. XXX

DES MOINES, APRIL, 1940

No. 4

IOWA STATE MEDICAL SOCIETY

Organized in 1850

Eighty-Ninth Annual Session

Des Moines, Iowa, May 1, 2 and 3, 1940

Do not fail to register. Registration Bureau—Hotel Fort Des Moines



PROGRAM

GENERAL SESSION

Wednesday Morning, May 1
8:30 a. m.

Main Ball Room

Opening Exercises:

8:30-9:00

Invocation—

BISHOP GERALD T. BERGAN

Greetings—

HOWARD D. GRAY, M.D., President,
Des Moines Academy of Medicine and
Polk County Medical Society

Response—

FRED M. SMITH, M.D., Iowa City,
Second Vice President

Address:

9:00-10:00

Etiology and Significance of As-
phyxia of the New Born—

W. C. C. COLE, M.D., Detroit, Mich-
igan

Recess to Visit Exhibits

10:00-10:20

Address:

10:20-11:20

Principles of Peritoneal Drain-
age—

ARTHUR E. HERTZLER, M.D., Hal-
stead, Kansas

President's Address:

11:20-11:40

FELIX A. HENNESSY, M.D., Calmar

GENERAL SESSION

Thursday Morning, May 2
9:00 a. m.

Main Ball Room

Address:

9:00-9:50

The Present Status of Surgery of
the Spleen—

JOHN DEJ. PEMBERTON, M.D., Roch-
ester, Minnesota

Address:

9:50-10:40

Deficiency States and Their Treat-
ment—

ALBERT M. SNELL, M.D., Rochester,
Minnesota

Recess to Visit Exhibits

10:40-11:00

Address:

11:00-11:45

Trouble Shooting—

MARVIN F. JONES, M.D., New York,
New York

Sectional Conferences

Wednesday Afternoon, May 1

MEDICAL SECTION	SURGICAL SECTION	EYE, EAR, NOSE AND THROAT SECTION
<p>Philip C. Jeans, M.D., Chairman Main Ball Room</p>	<p>Frank E. Bellinger, M.D., Chairman Tropical Room</p>	<p>Edwin Cobb, M.D., Chairman South Ball Room</p>
<p>Health Appraisal of Normal School Children— 2:00-2:30 LEE F. HILL, M.D., Des Moines</p>	<p>Prostatic Pathology, Complications and Treatment— 2:00-2:30 NATHANIEL G. ALCOCK, M.D., Iowa City</p>	<p>Fundus in Hypertensive Vascular Diseases— 2:00-2:30 PLACIDUS J. LEINFELDER, M.D., Iowa City</p>
<p>The Common Basis of Psychotherapy and General Therapy— 2:30-3:00 ANDREW H. WOODS, M.D., Iowa City</p>	<p>Discussers— OLIVER J. FAX, M.D., Des Moines JENNINGS CRAWFORD, M.D., Cedar Rapids</p>	<p>Discussers— ELMER P. WEIH, M.D., Clinton WILLIAM H. HOWARD, M.D., Decorah</p>
<p>Discussers— JAMES A. GRENE, M.D., Iowa City JOHN I. MARKER, M.D., Davenport</p>	<p>Early Diagnosis of Carcinoma of Large Intestine— 2:30-3:00 MCMICKEN HANCHETT, M.D., Council Bluffs</p>	<p>Use of Convalescent Scarlet Fever Serum in Otorhinologic Conditions— 2:30-3:00 JACK V. TREYNOR, M.D., Council Bluffs</p>
<p>Non-Tuberculous Lung Disease in Children— 3:00-3:30 CLINTON E. HARRIS, M.D., Grinnell</p>	<p>Discussers— ERNEST A. JENKINSON, M.D., Sioux City THOMAS F. THORNTON, M.D., Waterloo</p>	<p>Discussers— STEPHEN A. O'BRIEN, M.D., Mason City CECIL C. GRANT, M.D., Cedar Falls</p>
<p>Discussers— WALTER A. KIRCH, M.D., Des Moines EUGENE F. VAN EPPS, M.D., Clinton</p>	<p>Gallbladder Disease and Its Complications from a Surgical Standpoint— 3:00-3:30 FRANK R. PETERSON, M.D., Iowa City</p>	<p>Ophthalmologists and Elementary Education— 3:00-3:30 GEORGE C. ALBRIGHT, M.D., Iowa City</p>
<p>Streptococcus Infections— 3:30-4:00 RANSOM D. BERNARD, M.D., Clarion</p>	<p>Discussers— LESTER C. KERN, M.D., Waverly GRANT AUGUSTINE, M.D., Council Bluffs</p>	<p>Discussers— J. KENNETH VON LACKUM, M.D., Cedar Rapids GEORGE J. PEARSON, M.D., Burlington</p>
<p>Discussers— JOHN F. LOOSBROCK, M.D., Lacona ROMAN J. FISCH, M.D., Le Mars</p>	<p>Symptoms and Diagnosis of Joint Disease— 3:30-4:00 KARL R. WERNDORFF, M.D., Council Bluffs</p>	<p>Increase of Complications in Middle Ear Disease Following Routine Administration of Sulfanilamide— 3:30-4:00 F. HAROLD REULING, M.D., Waterloo</p>
<p>The Use and Abuse of Digitalis— 4:00-4:30 GEORGE B. CROW, M.D., Burlington</p>	<p>Discussers— ARCH F. O'DONOGHUE, M.D., Sioux City W. EUGENE WOLCOTT, M.D., Des Moines</p>	<p>Discussers— CHARLES E. CHENOWETH, M.D., Mason City HAROLD O. GARDNER, M.D., Waterloo</p>
<p>Discussers— JOHN W. THORNTON, M.D., Lansing ALLAN G. FELTER, M.D., Van Meter</p>	<p>Modern Treatment of Varicosities of the Lower Extremities— 4:00-4:30 SEBASTIAN A. CARNAZZO, M.D., Le Mars</p>	<p>Care and Treatment of Acute Sinuses— 4:00-4:30 HOWARD E. THOMPSON, M.D., Dubuque</p>
	<p>Discussers— WALTER A. STERNBERG, M.D., Mt. Pleasant RAY R. HARRIS, M.D., Dubuque</p>	<p>Discussers— DEAN M. LIEKLE, M.D., Iowa City FREDERICK L. WAHRER, M.D., Marshalltown</p>

OUR GUESTS



John deJ. Pemberton, M.D.
Rochester, Minnesota



Albert M. Snell, M.D.
Rochester, Minnesota



A. McMahon, M.D.
St. Louis, Missouri



Wyman C. C. Cole, M.D.
Detroit, Michigan



Arthur E. Hertzler, M.D.
Halstead, Kansas

Sectional Conferences Thursday Afternoon, May 2

MEDICAL SECTION	SURGICAL SECTION	EYE, EAR, NOSE AND THROAT SECTION
Philip C. Jeans, M.D., Chairman Main Ball Room	Frank E. Bellinger, M.D., Chairman Tropical Room	Edwin Cobb, M.D., Chairman South Ball Room
Clinical Types of Hepatic Insufficiency and Their Treatment— 2:00-2:30 ALBERT M. SNELL, M.D., Rochester, Minnesota	Differential Diagnosis and Treatment of Appendicitis— 2:00-2:30 GEORGE M. CRABB, M.D., Mason City Discussers— THOMAS J. IRISH, M.D., Forest City HAROLD L. BRERETON, M.D., Emmetsburg	Control of Hemorrhage— 2:00-2:30 MARVIN F. JONES, M.D., New York, New York
Subacute Bacterial Endocarditis— 2:30-3:00 MATTHEW T. MORTON, M.D., Estherville Discussers— LEE R. WOODWARD, M.D., Mason City FRANK M. FULLER, M.D., Keokuk	The Management of Minor Industrial Injuries— 2:30-3:00 DONALD C. CONZETT, M.D., Dubuque Discussers— LEE E. SHAFER, M.D., Davenport BARCLAY J. MOON, M.D., Cedar Rapids	Vitamins in Ophthalmology 2:30-3:00 BENJAMIN F. KILGORE, M.D., Des Moines Discussers— IRA N. CROW, M.D., Fairfield ELAM E. LASHBROOK, M.D., Estherville
Weed Dermatitis— 3:00-3:30 THOMAS L. TRUNNELL, M.D., Iowa City Discussers— LOUIS J. FRANK, M.D., Sioux City LESTER W. KIMBERLY, M.D., Davenport	Intra-abdominal Adhesions— 3:00-3:30 ERNEST M. KERSTEN, M.D., Fort Dodge Discussers— KENNETH L. JOHNSTON, M.D., Oskaloosa HARRY E. PFEIFFER, M.D., Cedar Rapids	Tracheobronchial Complications of Tuberculosis— 3:00-3:30 RALPH C. CARPENTER, M.D., Iowa City Discussers— WAYNE J. FOSTER, M.D., Cedar Rapids THOMAS R. GITTINS, M.D., Sioux City
Ectopic Pregnancies— 3:30-4:00 ADDISON W. BROWN, M.D., Des Moines Discussers— ROBERT M. COLLINS, M.D., Council Bluffs RODERICK F. MACDOUGAL, M.D., Cedar Rapids	Acute Surgical Abdominal Conditions and Their Treatment— 3:30-4:00 AARON Q. JOHNSON, M.D., Sioux City Discussers— PRINCE E. SAWYER, M.D., Sioux City WALTER R. BROCK, M.D., Sheldon	Treatment of Ocular Phobias— 3:30-4:00 ABBOTT M. DEAN, M.D., Council Bluffs Discussers: JOHN A. THORSEN, M.D., Dubuque JOHN E. ROCK, M.D., Davenport
Results After Thoracoplasty for Pulmonary Tuberculosis— 4:00-4:30 VERNON W. PETERSON, M.D., Iowa City Discussers— JESSE C. PAINTER, M.D., Dubuque LEON J. GALINSKY, M.D., Oakdale	Surgical Treatment of Pathologic Conditions of the Stomach— 4:00-4:30 HOWARD D. GRAY, M.D., Des Moines Discussers— CHARLES S. KRAUSE, M.D., Cedar Rapids FRANK W. FORDYCE, M.D., Des Moines	

EYE, EAR, NOSE AND THROAT SECTION

Thursday Morning, May 2

South Ball Room

Dry Clinic: 9:00-11:00

HANS BRUNNER, M.D., Chicago, Illinois
Formerly Chief of Poliklinik of Vienna**GENERAL SESSION**

Friday Morning, May 3

Main Ball Room

Symptom Clinic

Generalized Itching— 9:00-9:20
RUBEN NOMLAND, M.D., Iowa CityHeadache— 9:20-9:50
JOHN C. PARSONS, M.D., Des MoinesBackache—Medical Aspects— 9:50-10:05
HERBERT W. RATHE, M.D., WaverlyBackache—From an Orthopedic 10:05-10:20
Standpoint—
ARCH F. O'DONOGHUE, M.D., Sioux CityBackache—As Seen by a Gynecologist— 10:20-10:30
WILLIAM F. MENGERT, M.D., Iowa CityIndigestion and Abdominal Pain— 10:30-11:00
WILLIAM D. PAUL, M.D., Iowa CityAddress— 11:00-11:30
ALPHONSE MCMAHON, M.D., Vice President
American Medical Association, St. Louis,
MissouriReport of House of Delegates and 11:30-11:50
Installation of President

Wednesday Evening, May 1

SMOKER

Main Ball Room—Hotel Fort Des Moines

Floor Show

8:30 p. m.

Thursday Evening, May 2

ANNUAL BANQUETMain Ball Room—Hotel Fort Des Moines
6:30 p. m.

Toastmaster:

E. A. MOORE, M.D., Harlan

President's Address:

FELIX A. HENNESSY, M.D., Calmar

President-Elect's Address:

FRANK P. MCNAMARA, M.D., Dubuque

Introduction of Guest Speakers and Section Chairmen
Music—Dancing—Bridge**American Medical
Women's Association**

Branch 19

Wednesday, May 1, 1940
Fifth Annual Meeting**LUNCHEON**

Maple Room, Grace Ransom Tea Room

708½ Locust Street

12:15 p. m.

Business meeting, followed by informal talks by
members on projects of the organization and gleanings
of scientific subjects.**OFFICERS**GRACE SAWYER, M.D., Woodward.....President
ELOISE LARSON, M.D., Iowa City.....Secretary-Treasurer**State Society
of
Iowa Medical Women**

Forty-third Annual Meeting

Wednesday, May 1, 1940

DINNER

Maple Room, Grace Ransom Tea Room

708½ Locust Street

6:00 p. m.

PROGRAM

Business Meeting

Obstetrics in the Home—

NELLE T. SCHULTZ, M.D., Humboldt

Anesthesia for Obstetrics in the Home—

PAULINE V. MOORE, M.D., Iowa City

The Carotid Sinus—

ERMA SMITH, M.D., Ames

President's Address—

GAIL MCCLURE, M.D., Ames

OFFICERSGAIL MCCLURE, M.D., Ames.....President
EVA HAUMEDER, M.D., New Hampton.....Secretary
ALICE H. HATCH, M.D., Des Moines.....TreasurerReservations are requested for both meetings prior
to May 1. All women physicians are invited to both
meetings.**COMMITTEE ON ARRANGEMENTS**ROSEMARY SHOEMAKER, M.D., Chairman
410 Bankers Trust Building, Des Moines, Iowa

HOUSE OF DELEGATES

Cabin, Fort Des Moines Hotel

Wednesday, May 1, 1940

3:30 p. m.

Roll Call

Approval of Minutes of Thursday Morning Session, 1939

Report of Secretary

Report of Treasurer

Report of Board of Trustees

Report of Council

Report of Delegates to the American Medical Association

Reports of Standing Committees of the House of Delegates:

Committee on Constitution and By-Laws—

JOHN H. HENKIN, M.D., Sioux City, Chairman

Committee on Finance—

ERNEST C. MCCLURE, M.D., Bussey, Chairman

Committee on Medical Economics—

ERNEST E. SHAW, M.D., Indianola, Chairman

Committee on Medical Education and Hospitals—

JACK V. TREYNOR, M.D., Council Bluffs, Chairman

Medicolegal Committee—

FRANK A. ELY, M.D., Des Moines, Chairman

Committee on Necrology—

EARL B. BUSH, M.D., Ames, Secretary

Committee on Publications—

LEE F. HILL, M.D., Des Moines, Editor

Committee on Public Policy and Legislation—

FRED MOORE, M.D., Des Moines, Chairman

Reports of Special Committees of the House of Delegates:

Baldridge-Beye Memorial Committee—

JULIUS S. WEINGART, M.D., Des Moines, Chairman

Committee on Child Health and Protection—

HAROLD E. FARNSWORTH, M.D., Storm Lake, Chairman

Fracture Committee—

DONALD C. CONZETT, M.D., Dubuque, Chairman

Historical Committee—

WALTER L. BIERRING, M.D., Des Moines, Chairman

Licensing Committee—

FRANK M. FULLER, M.D., Keokuk, Chairman

Medical Library Committee—

JEANNETTE DEAN-THROCKMORTON, M.D., Des Moines, Chairman

Committee on Military Affairs—

HAROLD E. GRABER, M.D., Fairfield, Secretary

Committee on Pneumonia Control—

FRED M. SMITH, M.D., Iowa City, Chairman

Committee on Public Relations—

HERBERT E. STROY, M.D., Osceola, Chairman

Committee on Scientific Exhibits—

DOUGLAS N. GIBSON, M.D., Des Moines, Chairman

Woman's Auxiliary Advisory Committee—

C. B. HICKENLOOPER, M.D., Winterset, Chairman

Reports of Committees of the Council:

Speakers Bureau Committee—

JOSEPH B. PRIESTLEY, M.D., Des Moines, Chairman

Cancer Committee—

M. C. HENNESSY, M.D., Council Bluffs, Chairman

Women's Field Army—

MRS. A. V. O'BRIEN, Iowa City, Chairman

Memorials and Communications

New Business

Election of Committee on Nominations

Friday, May 3, 1940

South Ball Room, Hotel Fort Des Moines

7:30 a. m.

Roll Call

Reading of Minutes

Report of Committee on Nominations

Election of Officers

Reports of Committees

Unfinished Business

New Business

Announcement of Committees

Adjournment

ENTERTAINMENT

Tuesday, April, 30

Afternoon

Golf and Country Club

Pre-Convention Golf Tournament

Wednesday, May 1

12:15 p. m.

American Medical Women's Association

Luncheon and Program

Grace Ransom Tea Room, Maple Room

708½ Locust Street

2:30-5:00 p. m.

Woman's Auxiliary and Visiting Women

Drive and Tea

6:00 p. m.

State Society of Iowa Medical Women

Dinner and Program

Maple Room, Grace Ransom Tea Room

708½ Locust Street

8:00 p. m.

Woman's Auxiliary and Visiting Women

Bridge Party, Mezzanine Floor—Hotel Savery

8:30 p. m.

Stag and Smoker

Main Ball Room

Hotel Fort Des Moines

Thursday, May 2

12:15 p. m.

Woman's Auxiliary Luncheon

Mezzanine Floor—Hotel Savery

All Visiting Ladies Invited

6:30 p. m.

Annual Banquet, Ball Room

Hotel Fort Des Moines

Physicians, Their Wives and Guests

Committee on Arrangements

FELIX A. HENNESSY.....Calmar

ROBERT L. PARKER.....Des Moines

HAROLD J. MCCOY.....Des Moines

HOWARD D. GRAY.....Des Moines

N. BOYD ANDERSON.....Des Moines

PROGRAM OF SCIENTIFIC MOVING PICTURES

Assembly Room---Third Floor---Hotel Fort Des Moines

Wednesday, May 1

9:00 a.m. High Speed Motion Pictures of the Human Vocal Cords

1 Reel 20 minutes. Prepared by Mr. John Mills, New York, N. Y. Bell Telephone Company Laboratories.

The approach at Bell Telephone Laboratories to the problem of slowing down vocal cord motion has been by the use of a camera which takes pictures at an extremely rapid rate up to 4000 per second rather than by means of stroboscopic illumination. Thus several photographs are obtained during each actual cycle of the motion rather than a series of pictures which "stop" the motion at slightly different positions but which actually are taken during the course of several cycles. The film illustrates how the vocal cord pictures were made, giving views of the camera, lighting units, and so forth. A view of the cords taken with normal camera speed of 16 pictures per second, which is equal to projection speed, is also included in order to show the true rate of vibration of the cords. These are followed by the pictures taken with the high speed camera first at a rate of 1000 pictures per second, then at 4000 pictures per second. Thus in projection the apparent speed of motion of the cords is slowed down by a factor of 60-1 (1000 pictures per second) or 250-1 (corresponding to 4000 pictures per second).

9:20 a.m. The Hygiene of Swimming

1 Reel 15 minutes. Prepared by H. Marshall Taylor, M.D., Jacksonville, Florida.

This picture shows that man is not adapted to aquatic life, and illustrates the danger of infection to the ear, nose and throat, the danger of diving in shallow water, and the danger of chilling from cold water.

9:35 a.m. With These Weapons

1 Reel 20 minutes. Sound film to promote interest in syphilis. The film reiterates the statement that knowledge is the best armor against the disease.

9:55 a.m. Corneal Transplant

1 Reel 25 minutes. Prepared by Wendell L. Hughes, M.D., Hempstead, Long Island. Color film.

The technic follows roughly the Castroviejo method, with modifications, the most important being the interposition of a piece of egg membrane between the corneal suture and the graft for three purposes: (1) prevention of traumatism to the graft from the overlying suture, and on this account (2) the sutures may be left in for ten to fourteen days; (3) more exact approximation of the edges of the graft with the host cornea. The final results representing the conditions approximately a year later will be included in the film.

10:20 a.m. Allergy

2 Reels 46 minutes. Prepared by Bret Ratner, M.D., New York University College of Medicine, New York, N. Y.

This film shows anaphylaxis in experimental animals, such as the guinea pig, the rabbit and the dog; the immunity phase of hypersensitiveness; naturally acquired hypersensitivity; inhalation and experimental asthma; food allergy; congenital allergy; and human allergy.

11:05 a.m. Resuscitation of the New Born

1 Reel 15 minutes. Prepared by Eldon W. Tice, M.D., Los Angeles, California.

Low forceps delivery following protracted labor. Gentle milking out of oropharynx. Rebreathing bag filled with "Carbogen." Silk catheter (No. 16 French) for aspiration. Aspiration of oropharynx and introduction of catheter. Pressure on bag distends alveoli. Safety valve on bag prevents pressures greater than 20 mm. Breathing of carbogen stimulates respiration. Rubber dam protection of anal region during repair.

11:20 a.m. Scarlet Fever

1 Reel 30 minutes. The film portrays the control of scarlet fever in two brief and concise parts: first the treatment and the diagnosis of the disease with special reference to specific treatment with antitoxin, convalescent serum and sulfanilamide, followed by the prevention of scarlet fever with emphasis on the technic of Dick test, immunization and what is accomplished thereby.

11:50 a.m. Yesterday, Today and Tomorrow

2 Reels 35 minutes. Prepared by the H. J. Heinz Company.

The film presents a dramatic story of food preservation, bringing out the difficulties experienced by those men who attempted to preserve food but who were ignorant of bacterial action. The discovery of bacteria by Pasteur is shown.

Wednesday Afternoon

1:00 p.m. Signs of Inhalation Anesthesia

2 Reels 25 minutes. Prepared by Henry S. Ruth, M.D., and J. Harvey Sigafos, M.D., Department of Anesthesia, Hahnemann Hospital, Philadelphia, Pa.

The film shows details of signs of inhalation anesthesia, with charts presented by Dr. Arthur E. Guedel of Los Angeles.

1:30 p. m. Technic of Carbon Dioxide Absorption in Anesthetic Atmospheres

2 Reels 30 minutes. Prepared by Department of Anesthesia and Photography, Medical School, University of Wisconsin, Madison, Wisconsin.

Details of technic for absorbing carbon dioxide in anesthetic atmospheres are shown.

2:00 p. m. Dividing Cancer Cells in Vitro

One-half Reel 10 minutes. Prepared by Warren H. Lewis, M.D., and M. R. Lewis, M.D., Department of Embryology, Carnegie Institution of Washington, Baltimore, Maryland.

2:10 p. m. Tumor Cells and Macrophages in Tissue Cultures, Rat Sarcomas, and Carcinomas

1 Reel 15 minutes. Prepared by Warren H. Lewis, M. D., Department of Embryology, Carnegie Institution of Washington, Baltimore, Maryland.

2:25 p. m. Living Normal and Cancer Cells

2 Reels 40 minutes. Prepared by Warren H. Lewis, M.D., Carnegie Institution of Washington, Baltimore, Maryland.

Living white cells, lymphocytes from the lymph nodes, and macrophages from the omentum, all from the rat, are shown first. Eosinophilic leucocytes and monocytes from human beings are then presented. The characteristic structure and activity of those cells are clearly shown. The magnification remains the same throughout, and a watch face in the corner of the picture shows the rate of movement of the cells. Living sarcoma cells are shown in the second reel. Division of the cancer cells, showing the nucleus previous to the division, the separation of the chromosomes, and the reforming of the nuclei in two new daughter cells, is pictured. The normal macrophages are plainly seen ingesting dead material in the culture of the cancer cell.

3:05 p. m. Fungus Diseases of the Skin

2 Reels 30 minutes. Prepared by John G. Downing, M.D., Boston, Massachusetts.

3:35 p. m. Cutaneous Tuberculosis

1 Reel 20 minutes. Prepared by Paul A. O'Leary, M.D., Rochester, Minnesota.

3:55 p. m. Eclampsia

3 Reels 45 minutes. Prepared by Joseph B. DeLee, M.D., Chicago, Illinois.

The film shows prenatal care, a case of mild toxemia, one of eclampsia imminens, a patient with repeated convulsions and exophthalmic goiter and hemorrhagic liver, baby with liquefaction necrosis of the cerebrum, a case of eclampsia treated in a farm home by conservative methods (luminal, glucose, etc.), ending with a letter, by the author, to the profession regarding the treatment of eclampsia.

4:40 p. m. X-ray Pelvimetry

2 Reels 28 minutes. Prepared by Herbert Thoms, M.D., Yale University, New Haven, Connecticut.

The object of this film is to demonstrate the obstetrically important planes and diameters of the bony pelvis and to describe a practical method of measuring them by means of x-ray, using only two 10 x 12 films, and making two projections—one lateral and one anteroposterior.

Thursday, May 2

9:00 a. m. Syphilis—A Motion Picture Clinic

2 Large Reels 90 minutes. Sponsored by the American Medical Association and the United States Public Health Service. Sound film.

The diagnosis and treatment of syphilis presented by the following individuals:

Dr. John H. Stokes, Diagnosis of Early Syphilis; Dr. Harold N. Cole, Treatment of Syphilis; Dr. Paul A. O'Leary, Latent Syphilis; Dr. James R. McCord, Treatment of Syphilis in Pregnancy; Dr. Philip C. Jeans, Congenital Syphilis; and Dr. Joseph Earle Moore, Late Manifestations and Neurosyphilis.

10:30 a. m. Valves of the Heart in Action

1 Reel 20 minutes. Prepared by Professor Johannes Gad and distributed by the American Heart Association. Color film.

The film shows the valvular action of the heart, as demonstrated by Johannes Gad, and the arrangement of the apparatus. Then the systolic and diastolic movements of the heart as it lies on the table are shown. Next, the interior is pictured in action. Animated diagrams explain and amplify the scenes of the heart valves as well as of the flow of blood and the action of the heart muscle.

10:50 a. m. Mechanism of the Heart Beat and Electrocardiography

2 Reels 30 minutes. Prepared by Lewis M. Hurxthal, M.D., Boston, Massachusetts. Silent.

11:20 a. m. Treatment of Pain in the Back.

1 Reel 20 minutes. Prepared by Frederick A. Jostes, M.D., St. Louis, Missouri.

The film demonstrates a manipulative method of treatment for backache.

11:40 a. m. Juvenile Tuberculosis

1 Reel 20 minutes. Silent. Through courtesy of Iowa Tuberculosis Association.

The film is a presentation of one explanation of the development of tuberculosis from the first infection in children.

Thursday Afternoon

1:00 p. m. Let My People Live

1 Reel 20 minutes. Sound. Through courtesy of Iowa Tuberculosis Association.

The film shows the transmission of tuberculosis

from mother to child. The cast includes the leading character in "The Green Pastures" and the Tuskegee Institute choir.

1:20 p. m. **When Bobby Goes to School**

1 Reel 25 minutes. Sound. Prepared under the supervision of the American Academy of Pediatrics.

The film will show how an adequate physical examination should be given to a normal school child. It will also be shown before the medical section Wednesday afternoon at 2:00 p. m.

1:45 p. m. **Empyema**

1 Reel 25 minutes. Prepared by H. K. Tenney, Jr., M.D., Madison, Wisconsin.

The method presented in this film is essentially that devised by the Empyema Commission during the Great War. The advantages of the method are outlined; the technic of aspiration is portrayed; the actual operation is pictured; and postoperative care is demonstrated.

2:10 p. m. **Pneumonia**

45 minutes. Color film. Presented through courtesy of Lederle Laboratories, New York, N. Y., by Dr. F. E. Schmidt.

The film contains a review of the action of, and results obtained with, the use of the newer rabbit serum and sulfapyridine. It contains also a description of the diagnosis and specific treatment with these remedies. It includes indications and contraindications for their uses with a resumé of other symptomatic treatment. It takes the patient through the routine procedures practiced at the New York City Hospital.

2:55 p. m. **Cancer and Its Relation to the Veteran**

1 Reel 30 minutes. Color and sound film. Prepared by Max Cutler, M.D., Chicago, Illinois. Released through courtesy of the Veterans Administration.

3:25 p. m. **High Speed Motion Pictures of the Human Vocal Cords**

1 Reel 20 minutes. Prepared by Mr. John Mills, New York, N. Y. Bell Telephone Laboratories.

For description of this film, see Wednesday morning program.

3:45 p. m. **The Hygiene of Swimming**

1 Reel 15 minutes. Prepared by Dr. H. Marshall Taylor, Jacksonville, Florida.

For description of this film, see Wednesday morning program.

CLINICAL PROGRAM
IOWA STATE PEDIATRIC SOCIETY

Cabin—Hotel Fort Des Moines

Tuesday, April 30, 1940

- 9:00 a. m. Use of Torantil in Allergy
Arnold M. Smythe, M.D., Des Moines
- 9:20 a. m. Abscess Shoulder Joint in the Newborn
Postmeasles Encephalitis
James E. Dyson, M.D., Des Moines
- 9:40 a. m. Lipoid Pneumonia
Lee F. Hill, M.D., Des Moines
James E. Kahler, M.D., Des Moines
- 10:00 a. m. Pseudohypertrophic Muscular Dystrophy
Fred Moore, M.D., Des Moines
- 10:20 a. m. Laryngotracheobronchitis in Children
Dennis H. Kelly, M.D., Des Moines
James A. Downing, M.D., Des Moines
- 10:40 a. m. Use of Sauer's Pertussis Vaccine for Immunization
Robert O. Hughes, M.D., Ottumwa
- 11:00 a. m. Effect of Preliminary Amnesics and Analgesics in Obstetrics
E. P. Lovejoy, M.D., Des Moines

12:00 M.

LUNCHEON

Cabin—Hotel Fort Des Moines

- 12:45 p. m. Pathogenesis of Scoliosis in Children
Aladar Farkas, M.D., Budapest, Hungary (Visiting Professor of Orthopedics, State University of Iowa)
- 2:30 p. m. Mental and Emotional Health as Determined by Childhood Experiences
J. W. Layman, Ph.D., Des Moines
Mental Health Clinic—Des Moines Health Center
- 3:00 p. m. Chronic Ulcerative Colitis in Children
Mark L. Floyd, M.D., Iowa City
- 3:30 p. m. Use of Human Serum in the Treatment of Edema
Robert L. Jackson, M.D., Iowa City
- 4:00 p. m. Present Status of Diphtheria Immunization
Isaac Sternhill, M.D., Council Bluffs

6:30 p. m.

BANQUET

Des Moines Club

Address: Certain Heresies in Infant Feeding
Philip C. Jeans, M.D., Iowa City

HEADQUARTERS



MEETING PLACES

Hotel Headquarters—Hotel Fort Des Moines
 General Headquarters—Hotel Fort Des Moines
 General Session Meetings—Main Ball Room, Hotel Fort Des Moines
 Medical Section—Main Ball Room
 Surgical Section—Tropical Room
 Eye, Ear, Nose and Throat Section—South Ball Room
 House of Delegates—Wednesday, The Cabin
 Friday, South Ball Room
 Registration Desk—Lobby Floor
 Commercial Exhibits—Lobby, Mezzanine and Third Floors
 Scientific Exhibits—Lounge, Hotel Fort Des Moines
 Hobby Show—Green Room, Mezzanine Floor
 Scientific Motion Pictures—Assembly Room, Third Floor
 Headquarters for State Society of Iowa Medical Women—Grace Ransom Tea Room
 Headquarters for Woman's Auxiliary—Hotel Savery

SPECIAL MEETINGS

Iowa Alumni Association Luncheon
 Wednesday, May 1
 Tropical Room, Hotel Fort Des Moines, 12:15 p. m.

X-ray Club Luncheon
 Wednesday, May 1
 Dining Rooms 1 and 2, Hotel Fort Des Moines, 12:15 p. m.

Military Surgeons' Dinner
 Wednesday, May 1
 South Ball Room, Hotel Fort Des Moines, 6:00 p. m.

Des Moines Academy of Ophthalmology and Otolaryngology
 Dinner and Program, Des Moines Club
 All members of the Section invited.
 6:15 p. m.

Eye, Ear, Nose and Throat Section Luncheon
 Thursday, May 2
 South Ball Room, Hotel Fort Des Moines, 12:15 p. m.

Northwestern University Alumni Luncheon
 Thursday, May 2

Dining Rooms 1 and 2, Hotel Fort Des Moines,
 12:15 p. m.

Class of Iowa '31 Luncheon
 Thursday, May 2
 Sea Food Grotto, 811 Walnut
 12:15 p. m.

Section Chairmen

Section on Medicine—
 Chairman, PHILIP C. JEANS, M.D., Iowa City

Section on Surgery—
 Chairman, FRANK E. BELLINGER, M.D., Council Bluffs

Section on Ophthalmology, Otology, and Rhinology—
 Chairman, EDWIN COBB, M.D., Marshalltown

Rules for Papers and Discussions

For the general session meetings, no address or paper, except those of the President and the guests, shall occupy more than twenty minutes in its delivery. All papers read before the Society shall be the property of the Society. Each paper should be deposited with the reporter when read; if this is not done, it will not be published.

In most of the sectional meetings, the talks are twenty minutes in length. Discussions may not be longer than five minutes. A typewriter copy of each talk should be left with the chairman of the section so that it can be published in the JOURNAL.

Do not fail to register. Your badge will permit you to attend all scientific and social sessions of the Society.

Please bring your membership card for presentation at the registration desk. It entitles you to attend the meeting without cost.

Women attending the meeting are urged to register at the registration desk for the Woman's Auxiliary on the lobby floor of the Hotel Fort Des Moines on Wednesday, and at the Savery Hotel on Thursday.

WOMAN'S AUXILIARY

to the

Iowa State Medical Society

Organized May 9, 1929, Des Moines, Iowa
Eleventh Annual Meeting
Headquarters—Hotel Savery

PROGRAM

Wednesday, May 1, 1940

- 9:00 a. m. Registration—
Mezzanine Floor, Hotel Savery
Mezzanine Floor, Hotel Fort Des Moines
- 12:15 p. m. Luncheon—Hotel Savery
Preconvention meeting for Board Members and County Auxiliary Presidents, followed by preconvention Board meeting
- 2:30 p. m. Drive
- 3:30-5:00 p. m. Tea—At the home of Mrs. Howard D. Gray, 153 37th Street
- 7:30 p. m. Bridge Party—Mezzanine Floor, Hotel Savery. Doctors' Wives and Guests

Thursday, May 2, 1940

9:15 a. m.

Mezzanine Floor, Hotel Savery

Mrs. E. A. Hanske, President, Presiding

Invocation—

MRS. E. L. BOWER, Guthrie Center

Address of Welcome—

MRS. E. J. HARNAGEL, Des Moines

Response—

MRS. E. T. WARREN, Stuart

Reading of Minutes—

Report of President—

Announcement of Committees

Reports of State Officers

Reports of Standing Committees

Announcements—

MRS. A. E. MERKLE, Des Moines

Report of Registration—

MRS. L. K. MEREDITH, Des Moines

Address: Character and Personality Development

JOHN I. MARKER, M.D., Davenport

Adjournment

12:15 p. m.

Luncheon, Hotel Savery

Report of Advisory Committee—

C. B. HICKENLOOPER, M.D., Winterset

Greetings—

FELIX A. HENNESSY, M.D., Calmar
President, Iowa State Medical Society

Greetings—

FRANK P. McNAMARA, M.D., Dubuque
President-Elect, Iowa State Medical Society

Address—

MRS. ROLLO K. PACKARD, Chicago
President, Woman's Auxiliary to the
American Medical Association

2:00 p. m.

Closing Session, Hotel Savery

Reports of County Presidents

Award of Membership Cup—

MRS. J. A. DOWNING, Des Moines

Report of Winning Essay—

MRS. W. A. SEIDLER, Jamaica

Book Review—

MRS. JOHN CONNELL, Des Moines

Report of Resolutions Committee

Report of Nominating Committee

Election of Officers

Reading of Minutes

Installation of Officers—

MRS. S. E. LINCOLN

Adjournment

4:00 p. m.

Post Convention Board Meeting

6:30 p. m.

BANQUET

Ball Room, Hotel Fort Des Moines

Physicians, Wives and Guests

This program, social and business, is for all visiting women. All eligible women are urged to become members.

INTRAVENOUS ANESTHESIA

R. CHARLES ADAMS, M.D.

Section on Anesthesia

The Mayo Clinic, Rochester, Minnesota

One of the most recent methods of anesthesia, namely, intravenous anesthesia, now deserves a definite place when methods of anesthesia are discussed. Its safety and usefulness have been definitely established, provided the drug employed is properly administered in suitable cases. The ultra short-acting barbiturates, evipal soluble and pentothal sodium, are the best agents available at the present time for use in intravenous anesthesia. Pentothal sodium, owing to its increased potency over evipal soluble, produces a more satisfactory anesthesia. Concentrations of pentothal sodium in triple distilled water ranging from 2.5 to 10.0 per cent have been employed, but a 2.5 per cent solution has proved to be the least irritating to the intima of the veins or to the tissues, if extravenous injection should occur.

The technic of administration employed is the fractional method (Lundy), and the average dose required for induction of anesthesia will range between two and six cubic centimeters of a 2.5 per cent solution in the average case, depending on the tolerance of the patient for the barbiturate. Subsequent doses for maintenance of anesthesia range roughly between two and four cubic centimeters. Preliminary medication with morphine, atropine and nembutal is indicated in all but the shortest of surgical procedures. The average maximal dose of pentothal sodium ranges between one and two grams, but when large amounts of the drug are required to maintain anesthesia, it is advisable to discontinue the administration or supplement the anesthesia with local or inhalation anesthesia. The maintenance of a free airway and the avoidance of doses producing excessive respiratory depression are of the greatest importance. In this manner, a wide margin of safety will be maintained. A "butterfly" (Lundy) placed over the mouth and nose of the patient forms the most reliable guide to the clearness of the airway and amplitude of the respiratory movements.

Intravenous anesthesia is particularly applicable for the shorter and less extensive operative procedures, but when indicated, it may be employed for certain intra-abdominal operations in conjunction with local anesthesia. It may be of advantage to have the patient breathe oxygen from the gas machine in certain cases. Operations about

the surface of the body are well suited to this method of anesthesia, as are many minor gynecologic operations. Among other types one might mention certain operations on or about the eye, operations and manipulations involving the bladder and prostate gland, and operations on the thorax and thoracic wall, provided secretions from the bronchial tree are not sufficiently excessive to cause respiratory obstruction.

Intravenous anesthesia should be administered only by those experienced in its use. A thorough knowledge of the contraindications and dangers is essential to the safety of the method. It is preferable to use some other method of anesthesia for children under the age of ten years, and although elderly and debilitated patients, in the main, tolerate the intravenous anesthesia well, a more cautious administration is required. Intravenous anesthesia should not be employed in the presence of intestinal obstruction since vomitus may be aspirated into the trachea. The majority of operations involving the nasal and oral passages and the pharynx and larynx are performed with greater safety under local or intratracheal anesthesia, since obstruction to the airway, either by blood, mucus or mechanical factors, is always a potential danger. Because pentothal sodium is a sulphur-containing barbiturate, it is inadvisable to administer it to patients who have been receiving another sulphur-containing preparation such as sulfanilamide, unless the administration of the latter agent has been discontinued forty-eight hours prior to the operation. The use of pentothal sodium anesthesia in the doctor's office or in the home of the patient, where adequate anesthetic equipment is not available, is not safe, but for transient anesthesia for operations not exceeding five minutes, it may be employed. Wherever intravenous anesthesia is employed, facilities for the administration of oxygen and carbon dioxide should be available.

By observance of these contraindications and precautions, intravenous anesthesia becomes a method with a wide margin of safety. Its usefulness has been increasing steadily and for many operations it is the method of choice. Used in conjunction with local or regional anesthesia, it is often the safest method of anesthesia for the "poor risk" patient. Intravenous anesthesia has now taken an important place in the rapidly expanding field of new anesthetic agents and methods.

RELATIVE IMPORTANCE OF THE
PATIENT OR THE DISEASE

JOHN I. MARKER, M.D., Davenport

The emphasis on the relative importance of the patient or the disease which afflicts him has fluctuated from time to time. We are lead to presume that the family doctor of years ago understood the patient and his desires, fears, hates and loves better than the modern practitioner of medicine. If that supposition is true it was due in no small part to the fact that the family doctor knew less of pathology, physiology and chemistry. In his empiric practice of medicine, his puzzled desire to help tended to inspire confidence, and the personal discussion of family problems lead him so to understand his patients. With the advance of the sciences on which the practice of medicine is based, that is, physiology, pathology, chemistry of disease processes and improved surgical technic, the physician has come to understand disease better, and this more complete knowledge may possibly have resulted in neglecting to understand the patient.

With advances in the science of psychology and increasing emphasis on psychiatry in the medical school curriculum, we have a readjustment of the relative importance of the patient and the disease which afflicts him. Of recent years there has appeared in medical parlance the word "psychosomatic" which refers to the mind-body relationship; more specifically this term pertains to bodily symptoms of a mental origin. We find that numerous estimates of the relative importance of psychic factors have been made. Weiss¹ states that different men estimate from 20 to 44 per cent of all their patients complaining of illness have no demonstrable physical disease. He estimates in his own patients that 35 per cent have somatic troubles which are accentuated by emotional problems, and only 30 per cent can be considered to suffer purely from physical troubles. Symptoms of somatic disease may be aggravated by the patient's emotional reaction to the symptoms of the disease, or they may be modified by emotional problems unrelated to the physical condition.

It is becoming increasingly important for the physician to study and understand the emotional life of his patient. Neurosis or psychoneurosis should be diagnosed, not because it is impossible to find physical signs of disease, but because in the study of the patient's life history we find emotional episodes, failures of adaptation, and abnormal interests which spell disaster to patients. Such a study of life history has been considered less scientific, and in the past has been less exact,

than other sciences on which the practice of medicine is based. The psychiatric study of a case is tedious and time-consuming. The physician is made aware of the patient's life history only as the patient is willing to reveal it. There is nothing supernatural or occult about the study of psychology but it has been invested with such attributes at times in the past. If the patient will talk he should be lead to do so. The physician's attitude should be that of directing the conversation for as long a period as is necessary for him to understand the patient's reactions to life. The problem many times becomes not a question of whether the patient is suffering from a physical disease or a psychiatric disturbance; it becomes a problem of the relative importance of psychic and somatic components in the trouble.

A thorough physical examination should always be made because it has a beneficial effect on purely psychiatric cases, and because these patients may suffer from physical conditions as well as from mental disturbances. After a thorough physical examination and a survey of the patient's life history we should not hesitate to diagnose a psychoneurosis if it seems warranted. Macy² studied the records of 235 patients six years after the diagnosis of chronic nervous exhaustion. He found that 94 per cent had not developed organic disease which could be considered the cause of symptoms at their previous examination. Illustrating the persistence with which the medical profession continues to seek a physical cause for the illness, 200 of these patients had had 289 operations performed on them. So often the history of these nervous patients includes several operations which did not relieve their symptoms, after which they sought psychiatric advice. Only after the surgeon could find nothing more upon which to operate, and the physician who prescribed drugs had run the gamut of his therapeutic regime, was psychiatric advice sought. Such treatment only serves to illustrate the reluctance with which doctors accept the fact that prolonged physiologic disturbances can be psychogenic in origin. However, we are making advances, and what in the past was considered a purely physical phenomenon has been definitely shown to be produced by mental conditions.

Kerr³ and others have shown that phenomena connected with the anxiety states are signs of tetany associated with hyperventilation. They feel they have definitely proved that hyperventilation maintains a state of hyperirritability of the nervous system which approaches clinical tetany. Just what the chemical changes in the body may be as related to hypocalcemia and alkalosis is not definite. Only recently I had occasion to care for

a patient, thirty years of age, who was subject to chronic alcoholism on the basis of psychogenic factors. Accompanying this excessive drinking was a great deal of mental depression, a feeling of inadequacy and insecurity, with anxiety as to the cause of a typical tetany which was produced. Trousseau's sign was present, but there was no Chvostek sign. There were spasms of the hands in which a typical "obstetric" hand was developed. The patient was under considerable nervous tension and she had found that heavy doses of gin were the only relief for the condition. The daily intake of alcoholic liquor amounted to one quart a day. There had been no generalized convulsions but other observers have noted this in anxiety states. An injection of calcium chloride was given intravenously, and alcohol was abstained from for two days. The cramping in the hands ceased, and where Trousseau's sign had previously been produced by thirty seconds pressure on the upper arm, it failed to be produced after three minutes. The patient's anxieties were greatly relieved when she was made to understand that the feared paralysis had not developed. We have made a great advance when we learn that psychic states can be the basis of physical changes which are fairly permanent and definite. Possibly in the not too distant future we will find that many conditions of illness which we have thought were purely imaginary are due to demonstrable physical changes brought on by emotional stress.

Kerr⁴ mentions the possibilities of physical signs such as rapid pulse, increased blood pressure, blushing, cardiospasm, pylorospasm and spastic colon, being due to overstimulation of the central nervous system with a spilling over of impulses into the autonomic nervous system. There are other purely hysterical disturbances, such as amblyopia, anesthetics, and paralyses which may later be shown to be psychically produced but with demonstrable physical changes. It is further suggested that the migrainous type of headache may be a physiologic effect due to vascular constriction in areas of the brain. The patient who is suffering from hyperventilation due to anxiety with subsequent alkalosis, may obtain relief by breathing an increased percentage of carbon dioxide, or from breathing into a paper bag. The relief which these patients obtain for their sighing respiration, unstable pulse rate and increased blood pressure, is satisfying to them, and consequently lessens the anxiety tension with definite transfer of confidence to the physician.

As a physical basis is established for various psychiatric conditions, their treatment is taken from the specialist's field and given to the gen-

eral practitioner. Psychiatric conditions affect the various organs and organic systems, and show the necessity for a degree of psychiatric understanding on the part of those who have a general practice or those who do a special work in other fields. Pottenger⁵ states that the physician treating a tuberculous patient must be more than a physician; he must be a humanitarian, and understand that he has a human being to restore to healthful thinking and living. The patient should be led, according to his physical ability, to continue appropriate activity which will keep his mind alert during the rest treatment. A program of graduated activity is recommended which prevents depression and preserves the independence, self-respect and ambition of the patient, so that he may be mentally equipped to take his place in society as early as physical conditions permit.

The mental factor in dermatology is treated by both dermatologists and psychiatrists. Gastineau⁶ enumerates numerous conditions which have in the past been considered purely dermatologic, but in which there are strong psychic factors. These he finds in acne rosacea, chronic urticaria and pompholyx, as well as in itching eruptions about the face and ears.

Various circulatory conditions are produced, accentuated or prolonged by psychic conditions. Robinson⁷ cites a case of arterial hypertension which was relieved by change of work with attendant lessening of emotional strain. Fetterman and Ashe⁸ find neuropsychiatric symptoms a most important cause for patients presenting themselves to the clinic. In twenty-one cases of bacterial endocarditis, these symptoms varied from slight headaches, stiff neck, dizziness and weakness, to delirium, coma, anxiety and frank schizophrenic psychosis. Mayer-Gross⁹ finds what he designates as "twilight states", with more or less severe dimming of consciousness which are many times associated or caused by increased blood pressure. The onset of such a state is usually sudden, and terminates after a short duration in death or apparent cure. Likewise, emotional depressions, often with anxiety and increased irritability, are associated with the arteriosclerotic and heart failure cases. These patients come to our attention when their irritability or their delirious condition at night forces the attendants to call for medical help early in the course of the condition when cardiac compensation is still good. A common complaint is that these patients become confused at night only, or they become irritable only on great provocation. As the cardiac compensation lessens, the ability to adapt becomes lessened until the patient is in a continuous

state of increased irritability. The symptoms in the patient with arterial hypertension may be due to emotional factors as cited above, or the fluctuations in mood may be caused by hypertension.

The gastro-intestinal system is probably one of the most greatly affected in the entire body by psychic conditions. The fact that spasms of the cardia or the pylorus are readily caused by emotional depressions or strong unsatisfied urges is one of the oldest recognized physical manifestations of psychic conditions. Osler in his textbook of medicine mentions the suggestion of Glenard and others that the vascular disturbances in the abdominal viscera, in consequence of displacements and kinking, account for the feelings of exhaustion and general nervousness. Osler was substantiating the opinion of his day in designating as physical the exhaustion which we today consider to be mental. It is now becoming generally recognized that mucous colitis is more psychic than physical in nature. That Osler suspected this relationship is evident from his words: "These cases are almost invariably seen in nervous or hysterical women or in men with neurasthenia. It is probably not an enteritis but a secretion-neurosis." Relief is coincident with the removal of the cause for worry, the improvement of family relationships or the assurance that serious physical disease is not developing.

The practitioner who would properly understand the relative importance of psychic and physical factors in disease must study not that disease alone, but a complete history of the patient and the various experiences which have entered into the patient's present make-up. Dunbar¹⁰ believes a great step forward was taken "when mothers-in-law and neurotic school teachers were added to gonococci and yellow fever mosquitos in the medical man's accounting of potentially injurious agents." A psychosomatic history of the patient does not necessarily contain facts that are not included in any good medical, social and psychic history. The method of using the material, rather than the content of the material, is the important factor in the treatment of the patient. Before one can suspect a patient of being predisposed to psychic illness, one must understand the relationship between character and somatic make-up of the individual in question. Dunbar states that "it is well to obtain pictures from several different angles of the patient's habitual manner of reacting in the various spheres in which life demands adjustment, and then to superimpose them." This author further sets forth seven views of fundamental importance; the patient's reaction to himself; to his family; to his work; to his social environment; to sex;

to his present illness; and the degree of his insight concerning these reactions.

It is well to remember in this connection that in attempting to obtain and evaluate the patient's history, not only conscious, but unconscious reasons as well, may lead the patient to give an erroneous picture of conditions. A patient, twenty-one years of age, whose life was inefficient, consulted the physician because of fainting spells, palpitation, weakness and a consciousness of impending death. Several thorough physical examinations failed to disclose any pathology. The patient's greatest fear was of the death which seemed imminent to her. After she had spent many long hours telling her story she came to realize that her fear of death was really brought about by an often pictured death scene of which she was the central object. To this scene were brought all of the disappointments and fancied wrong doings of friends, relatives and the lover whose affection had cooled. She satisfied herself in these situations by imagining their sorrow as she lay in her casket. Such a picture, repeated many times over several years of life, conditioned her to feelings of impending death. She was greatly relieved when she realized the true cause of her fears, and the feelings of unreality of which she complained so bitterly were eliminated with her insight into her condition.

The handling of cases in which the subconscious mind plays a great rôle should be reserved for the mental specialist. However, it is certainly not expecting too much to require the general practitioner consciously to practice systematic mental therapy. Likewise, the surgeon should ask himself if the symptoms which he is trying to relieve by physical methods might be due to psychic conditions. The result would be fewer patients who have submitted to several operations and still complain of their initial symptoms.

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THE PRINCIPLE OF RUSSELL TRACTION APPLIED TO FRACTURES OF THE UPPER HALF OF THE HUMERUS

DOUGLAS N. GIBSON, M.D., Des Moines

The simplicity of application and the encouraging results obtained by the use of Russell traction in the treatment of fractures of the upper end of the femur prompted the application of this principle of traction to the treatment of fractures of the upper half of the humerus.

Experience with this type of traction leads the author to believe that it has a place in the treatment of certain fractures. It is simple in application and adjustment, and effects good reduction. The chief disadvantages are that the patient must be bedfast for about three weeks and a portable x-ray unit must be available for use. These are, in part, offset by the infrequent need of professional physiotherapy to regain painless motion after removal of support.

The diagrammatic sketch (Figure 1) shows the manner of application of the traction. Moleskin

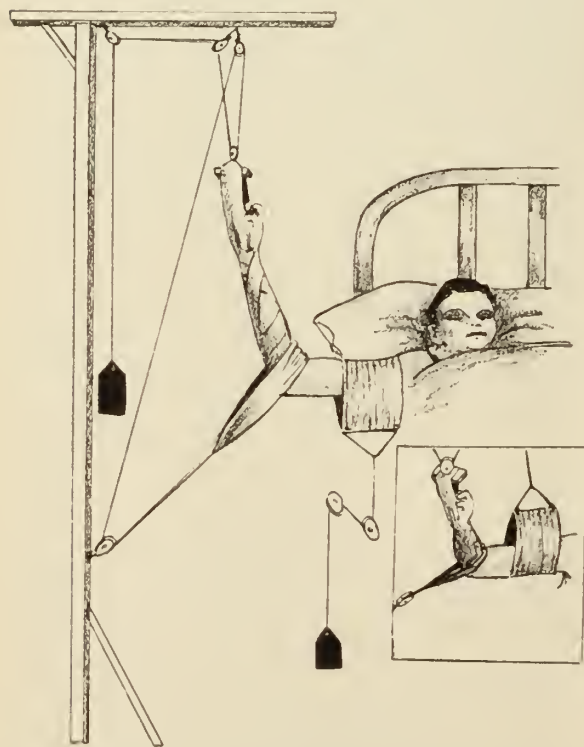


Fig. 1. Showing manner of application of traction. Inset illustrates lateral traction pulling laterally, as used in Case 2. Large view shows lateral traction pulling backward, as used in Case 3.

adhesive with a spreader block is applied to the palmar and dorsal aspects of the forearm and secured by a two inch elastic type of bandage. Stockinette four inches wide and eighteen inches

long is looped around the elbow and one end of the traction rope is attached to this. The lateral traction frame is placed in position and the rope carried over the previously attached pulleys in the manner shown in the diagram. Four to five pounds of weight are used. Adjustment of the frame and pulleys is made to establish the desired line of pull. This is usually a position of sixty to seventy degrees abduction, fifteen degrees of forward elevation and neutral or slight external rotation of the arm. The elbow is extended slightly below a right angle. The arm is easily counterbalanced in any position.

Lateral traction is of great value in perfecting reduction of fractures through the surgical neck and is applied to counteract the displacement of the upper end of the lower fragment. It can be accomplished by encircling a spreading band of six inch stockinette around the arm at the position of the upper end of the lower fragment, and traction may be obtained in any desired direction by the application of two or three pounds of weight.

The optimum initial reduction is not obtained for twenty-four hours, at which time x-rays are taken in two planes. Any necessary adjustments may then be made. The position is further checked by x-rays thereafter at weekly intervals or as otherwise indicated while the patient is in traction. After three weeks union has usually progressed to a point that traction may be removed and a shoulder spica cast applied. This is applied with the patient in a sitting position and the arm in the position of reduction. The cast is worn until union is firm enough to allow active use of the arm.

Blum has advocated this method of traction in treatment of fractures of the shaft of the humerus. He states it is not applicable to fractures through the surgical neck. The addition of lateral traction to the upper end of the lower fragment in the desired direction has effected good reduction in these types of cases. The addition of coaptation splints to fractures of the mid-shaft aids in stability. Fractures of the lower third of the shaft have not been satisfactorily reduced by this method.

CASE REPORTS

Case 1. A very large, elderly lady suffered a displaced fracture of the surgical neck of the left humerus when she fell over an electric fixture wire. She was hospitalized immediately. Manipulation under anesthesia failed to accomplish reduction. Multiple pulley traction was applied. Length was obtained in twenty-four hours, but the upper end of the lower fragment was displaced medially. Lateral traction with three pounds of weight accomplished good reduction. Traction in bed was continued for twenty-four days. A

cast was then applied which she wore for three weeks. Four weeks after removal of all support she could do her own laundry, comb her hair and tie her apron behind her.

Case 2. A charming middle aged grandmother fell down a stairway while carrying her grandchild and suffered a displaced fracture of the surgical

neck of the left humerus. Because the upper end of the lower fragment tended to displace anteriorly, a band of stockinette was placed around the arm and the pull directed backward on the fragment.



Fig. 2. Case 2, before reduction.

neck of the left humerus. She was hospitalized immediately and multiple pulley traction, augmented by lateral traction, was applied. Reduction was readily accomplished. A cast was applied on the twenty-first day and worn for three weeks. The day the cast was removed she drove her car a distance of one hundred miles. Two weeks later



Fig. 3. Case 2, after reduction.

she was able to comb her hair and tie her apron. Three months after her injury she motored to California for the winter.

Case 3. A young man, sixteen years of age, hurdled a fence and landed on his right shoulder. He suffered an oblique fracture of the surgical neck of the right humerus. He was hospitalized and multiple pulley traction applied. Reduction was not accomplished. Physical and x-ray findings pointed to an interposition of soft tissue between the fragments. He was anesthetized, the fracture was manipulated and multiple pulley traction was



Fig. 4. Case 3, before reduction.

Good reduction was obtained. A cast was applied after three weeks of traction and removed three weeks later. Exercises were prescribed and eight weeks after the injury he could comb his hair and reach into his hip pocket.



Fig. 5. Case 3, anteroposterior view after reduction.

Case 4. A very large, elderly lady suffered a transverse fracture of the middle third of the left humerus when she fell down a stairway. She had a known severe hypertension which had



Fig. 6. Case 3, lateral view after reduction.

caused symptoms for some years, and her general condition did not warrant the use of an anesthetic. She was hospitalized and multiple pulley traction was applied. Anteroposterior and lateral coaptation splints aided in stability. Reduction was readily accomplished. Traction was continued for three weeks and a plaster of paris shoulder spica was then applied. This was worn for four and one-half weeks when union of the fracture was firm. She quickly regained full motion in the joints of the arm.

CONCLUSIONS

Several features of this type of treatment are worthy of mention. The patient is comfortable. Minor changes in position of the patient for nursing care do not disturb the reduction. The early active use of the elbow and shoulder through a small range of motion is possible. Induration of the soft tissues around the fracture is markedly lessened. There is a good range of motion in the joints of the arm immediately after removal of support, and a painless normal or near normal range of motion in the joints is rapidly regained without the use of intense physiotherapy. The addition of lateral traction makes this method of treatment applicable to the reduction of fractures through the surgical neck of the humerus.

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MYASTHENIA GRAVIS

A Case with Necropsy

RAYMOND C. SCANNELL, M.D., Carroll

Myasthenia gravis is an unusual disease. The case here presented is of special interest because it was under observation from a short time after the development of the first symptoms until its fatal conclusion, because it presented an opportunity to employ the therapeutic agents which have been recommended in recent years, and because postmortem examination was made.

CASE REPORT

The patient was first seen in November, 1937. The chief complaints were difficulty in chewing and swallowing, and "tightening" of the tongue, all of one month's duration.

The medical history of the family, of past illnesses, injuries, surgery, the gastro-intestinal, respiratory, cardiovascular, genito-urinary, and ner-

vous and mental systems was remarkably negative. There was a tonsillectomy at an early age. There was some impairment of the appetite during the present illness.

The patient was a white female seventeen years of age, with a normal gait. The temperature was 98 degrees, pulse 72, blood pressure 120/80, weight 161½ pounds. The only physical finding which seemed significant in this patient was the increasing difficulty which she experienced in reading aloud. After about two minutes of such effort it was impossible for the patient to continue. There were no complaints referable to the eyes and no eye findings at this time. There was no ptosis and no impairment of motility; the pupils were round and equal and reacted normally; there was no diplopia. X-ray examinations of the chest, esophagus and stomach made at this time were negative. There was no evidence of a thymus. Blood Kolmer and Kline reactions were negative and the urine was free of sugar and albumin.

Three weeks after the first examination the patient observed stiffness of the hands in her typing class speed tests. After a short period of typing the fingers became increasingly stiff until it was impossible for her to strike the keys. From this time until January 14, 1938, about two months after she was first seen, the patient's symptoms varied somewhat in degree but remained otherwise about the same, namely, weakness of the muscle group employed after sustained efforts at speech, swallowing and typing. In addition, the patient noticed considerable quantities of saliva in the mouth, particularly at night. Some transient soreness and swelling in one ankle were observed. There were periodic recurrent symptoms of coryza with cough. It was observed at this time that the patient could not blow out her cheeks. She was unable to whistle but this did not seem significant, since she never had been able to do so.

The diagnosis of myasthenia gravis was made at this time, two months after the first examination and three months after the first symptoms. She was placed on glycine (a teaspoonful three times a day) and ephedrine (¾ of a grain after breakfast and before the evening meal) and a high caloric diet, since she had lost about twenty pounds. She made marked improvement and one week later was placed on prostigmin (one 15 milligram tablet in the morning and one at noon). After one week she reported relief of all symptoms except at times. It was possible to discontinue the ephedrine which the patient had found disagreeable because of the heart pounding and headache which followed. Remarkable improvement followed a tablet of prostigmin in ten to fifteen minutes and it was possible for the patient to talk or eat with-

out apparent difficulty. The patient frequently contracted mild colds with cough.

Stiffness of the arms in attempting to undress or comb the hair was first observed on February 19. Speech and swallowing were not as good as they had been despite the use of prostigmin.

The patient was again seen on March 2, having been examined at the Mayo Clinic in the meantime. There had been some alteration in the dosage of the medications, the prostigmin dosage being reduced (one ounce of a solution of 15 milligrams in six ounces of water before breakfast, two ounces before the noon and evening meals and one ounce about an hour after the evening meal) and the glycine dosage being increased (a tablespoonful being taken three times a day, after each meal). The patient complained of coughing considerably at night, due to the collection of mucus in the throat. It was assumed that this explained some of the "colds" from which the patient had been suffering.

On March 30 there was considerable more trouble with articulation, deglutition and the use of the arms. Choking on swallowing was frequent, especially with water, and a cough had been present for six days. These symptoms had failed to respond to a further increase in the glycine (an additional tablespoonful was taken during the afternoon) and it was necessary to increase the prostigmin dosage. She was instructed to take 22.5 milligrams (one and one-half 15 milligram tablets) dissolved in six ounces of water, an ounce and a half to be taken before each meal and in the afternoon.

On April 25 marked increase in the weakness of the arms necessitated a further increase in the dosage of prostigmin to a daily total of thirty milligrams. On June 3 ptosis of the lids first became evident. The patient complained of the presence of considerable mucus in the throat most of the time. The total weight loss was thirty-six pounds at this time. There were occasional fleeting epigastric pains.

On June 16, in addition to the other symptoms, weakness of the legs was first observed, especially on getting out of bed in the morning. There was considerable mucus in the throat at times. The patient was able to drive her car, however, and although she had abandoned her studies and the majority of social activities she carried on a fairly normal existence otherwise.

On June 28 the patient was seen at home in a condition of severe collapse. The pulse was rapid and weak. Respirations were labored and, due to a great deal of mucus in the throat, loud and accompanied by frequent cough. The patient was able to make herself understood only with great

difficulty, and there was general weakness of the whole body which was bathed in perspiration. Slight cyanosis was present. The laborious efforts at respiration produced small excursion of the chest wall and none of the abdomen. There was only a feeble response to two ampules of prostigmin and an effort to administer glycine by means of a tube was unsuccessful. The patient was removed to the hospital. She responded slightly to the administration of atropine and the use of an oxygen tent. Her real recovery appeared to begin the following day when she was placed in a Drinker-Collins respirator.

In the meantime it was necessary to give the patient frequent doses of prostigmin by hypodermic injection. The oral method of giving the drug, ordinarily effective, produced no appreciable response. Due to the greatly increased requirement of prostigmin the ampule supply was exhausted and it was necessary on one occasion to give the patient a solution of the oral tablet in sterile water by injection. The response was at least as good as with the regular ampules and there were no untoward effects. A fresh supply of the ampules was obtained before it was necessary to repeat this administration.

During the ensuing two months the patient remained in the hospital. It was necessary to keep her in the respirator a considerable part of the time. She developed several attacks of pneumonia with all the characteristic symptoms and findings, including chills, fever, cough, pain in the side, reduced resonance, increased breath sounds, râles, etc. At such times continuous use of the respirator was necessary. A suction apparatus of the type ordinarily employed in tonsillectomies was often used to relieve the patient of the collections of mucus in the throat. The use of a Levine tube and feedings by gavage were often necessary during this period. The patient seemed to make a rather facile recovery from her pneumonic episodes, appearing critically ill on one occasion and several days later getting along quite comfortably. On the whole, even in the milder phases of her condition, a considerably increased dosage of prostigmin was necessary.

It was possible to leave the patient out of the respirator for gradually longer intervals following her last attack of pneumonia, and on August 27 the patient left the hospital. During her stay she had learned to administer prostigmin to herself by hypodermic injection.

She re-entered the hospital on October 6 in another relapse similar to that which characterized her previous hospital admission. Her course in the hospital was essentially the same as on the previous occasion and she was able to leave the hos-

pital on October 22. From this time until her last admission to the hospital the patient again was fairly comfortable at home. Her total weight loss from the beginning of her illness was about forty pounds. She was taking forty milligrams of prostigmin orally in divided doses and two ampules hypodermically. She was taking a tablespoonful of glycine twice a day. She was able to consume an adequate diet and drive her car in town traffic.

On December 6 the patient suffered a relapse similar in character to, but more severe than, the previous ones. She was hospitalized and, because of increased respiratory difficulties, was returned to the respirator. Evidences of pneumonia developed and the patient died in the respirator on December 9. Permission for postmortem examination was granted.

POSTMORTEM FINDINGS

The body was that of a girl about eighteen years of age, not extremely emaciated. The skin was soft and rather dry and of a waxy appearance. The sclera were clear. There were no signs of any cervical adenopathy, and no evidence of thyroid enlargement on inspection or palpation. There were no scars on the front of the chest or abdomen. There was a needle puncture wound in about the fifth interspace just to the left of the sternum. Incision was made from three centimeters below the episternal notch to about two centimeters above the symphysis pubis in the midline. The subcutaneous adipose varied in thickness from one and one-half centimeters in the chest to three centimeters over the abdomen. The musculature was soft and flabby, but deep red in color. There seemed to be a considerable degree of emphysema in the mediastinum. No thymus tissue could be identified. The pericardial sac contained about fifty centimeters of a slightly turbid, straw-colored fluid. The heart was rather small, weighing probably about 250 grams, and there was no evidence of cardiac hypertrophy or valvular disease. The right lung was purplish in color and about the consistency of the liver throughout. There were some pleural adhesions on the left side, upper posterior aspect of the lung and also on the lower posterior aspect of the lung. The left lung was relatively light in color and weight and on the posteromedial aspect there were a number of subpleural hemorrhages, possibly agonal. The liver, kidneys, spleen, appendix, uterus, ovaries, urinary bladder and stomach seemed normal.

The microscopic diagnosis was myasthenia gravis, confluent bronchopneumonia, chronic passive congestion of lungs and spleen, and cortical adenoma of the adrenal glands.

GENERAL DISCUSSION

Symptoms.

The symptoms of the myasthenia gravis patient depend on the muscle groups involved and the stage of the disease. Muscles of facial expression, of phonation, of deglutition, of respiration and of the extremities may be involved in individual groups, collectively, or in various combinations. It has become evident that smooth muscles may also be involved. The condition is prone to undergo periods of exacerbations and remissions and major trends toward a reduction or increase in the condition may be superimposed upon these cycles.⁵

Probably in the great majority of cases the ocular muscles are first involved.^{1 and 5} The case reported in this article appears to be rather exceptional in that the muscles of articulation and phonation first became involved. Later in sequence the muscles of deglutition, of the upper extremity, of respiration, and then those about the eyes showed the typical fatigability.

Characteristically there is rapid fatigue in the affected muscles with a coincident rapidly increasing paralysis. Paralysis or marked weakness of the muscles may in severe cases be present without use. Thus the patient may fall, as did this one, on getting out of bed in the morning, due to weakness of the leg muscles. Paralysis of the periorbital muscles produces ptosis. This, with the loss of function of the facial muscles of expression, gives the patient an apathetic expression. Efforts at smiling, which may be slightly more effective on one side producing a "snarl" effect, the diplopia, the tendency of the mouth to hang open, and the weakness of the neck muscles making it difficult for the patient to hold the head up, may add to this apathetic, "absentee" expression. An impression of mental dulness may be produced. However, the mentality is not impaired. One of the most brilliant additions to the armamentarium in treating the condition came as a result of the observations and studies of a woman physician who became affected by the condition while pursuing her medical school studies. She was able to complete her studies, and is said to be engaged in practice at the present time.

Unaccountable subjective paresthesias have been attributed to hysteria; it seems possible that with the better understanding of the condition an organic basis for many of these may be discovered. The stiffness described by patients in affected muscles is understandable. The melancholia or depression which is sometimes present (one suicide is recorded) seems understandable also, and no statistical evidence is at hand that these symp-

toms are of greater frequency than in other chronic conditions.

Collection of mucus in the mouth is of frequent occurrence. Its ropery tenacious character and the weakness of the pharyngeal muscles make it difficult for the patient to dispose of it, and may add considerably to the patient's distress. Boothby⁵ has associated the presence of this mucus with phases during which the general condition of the patient is not good. A similar type of vaginal discharge has been described² but it was not observed in the present case. Symptoms are said to be more marked at menstruation⁶ but this association was likewise not observed in this case. Involvement of cardiac muscles may give rise to marked "heart weakness," palpitation and syncope.⁷ Although these symptoms were observed in the present case, involvement of cardiac muscles was not found. Evidence of postural hypotension, which has been found in some cases, was also absent in this case.

Loss of weight occurs and may be attributed to reduced food intake as the patient abandons or curtails eating when, after early efforts, mastication becomes impossible and even fluids produce choking due to the progressive dysphagia. An independent factor is the intolerance for food, even when given by gavage through a Levine tube. This patient became distressed, at times vomited or developed diarrhea, even if only slightly overfed during relapses. It was necessary on such occasions to limit foods to the easily assimilable ones, such as infant formulas and fruit juices, and to limit the total caloric content to an amount sufficient only for basal maintenance.

The progressive paralysis of the muscles of respiration with the consequent anoxemia may, and in this case did, precipitate some of the more critical phases of the condition. The presence of mucus in the throat, and the inability to dispose of it by expectoration or swallowing, may further complicate such episodes. Aspiration may readily occur. It was believed that the patient in the case described developed several pneumonic episodes at various times as a result of such aspiration, but aided by some natural resistance, possibly fortified by the previous use of a mixed cold vaccine and by the use of the respirator, she seemed to recover from these with about the same facility that she developed them.

Physical findings.

Aside from the characteristic appearance and the paralysis of the involved muscles after exercise, with recovery following rest, the physical findings may be negative. The reflexes are normal even in affected muscles. There is no objec-

tive evidence of sensory disturbance. There may be loss of weight and flabbiness of the muscles, but no atrophy. The Jolly reaction, rapid fatigue after faradic stimulation may be present; according to Buzzard, response to galvanic stimulation remains. In twenty-four cases Kennedy and Moersch¹ found the typical electric response in eleven, doubtful in four and absent in nine.

Diagnosis.

The diagnosis is said to be easy. However, the average lapse of time between the onset of symptoms and recognition of the disease in one series of cases¹ was 4.8 years and varied between one month and twenty-five years. In fifteen cases of this series it was over ten years. This study was based on observation previous to 1932 and the interval between onset and recognition is probably not so great at present. The electric reaction of Jolly may be of some assistance in diagnosis but it cannot be applied to the ocular muscles.⁶ Diagnostic and suggestive eye findings have been described by Abraham⁸ and others.⁹ Laboratory examinations have been found to have little value except in their failure to reveal any causative abnormality. Biopsy of affected muscles shows the presence of numerous lymphocytes.¹ Cocci also have been described.

No other condition is known to respond as does myasthenia gravis to the exhibition of prostigmin, and its use has been proposed as a diagnostic test by Viets and Mitchell.¹⁰ It is of considerable confirmatory value and is especially helpful in mild, complicated or otherwise obscure cases. The patient is observed ten and thirty minutes, one, two, four, and six hours after the administration of three cubic centimeters of 1:2000 solution of prostigmin, with 1/100 grain of atropine. Subjective and objective response is noted according to degree, from one, feeble, to four, marked. A total of thirty or more is said to occur in cases of myasthenia gravis.¹⁰ This test represents a slight alteration of a test previously suggested.¹¹ Quinine exaggerates the symptoms of myasthenia gravis and may be helpful in the diagnosis of difficult cases.¹² It is used with caution.

Treatment.

Walker, an English woman physician, described the effectiveness of physostigmine in relief of symptoms of myasthenia gravis in 1934,¹³ and later proposed an analogue first synthesized in the laboratory by Aeschlimann and Reinart,¹⁴ prostigmin, as likewise effective, but with less of the undesirable side-effects.¹⁵ Her results were substantiated by others.

Increased experience with this drug since that time has proved the treatment of myasthenia gra-

vis to be largely a matter of optimum prostigmin dosage, except in severe cases or extreme relapses. By means of prostigmin patients are relieved of much of the distress associated with the condition, and indeed may carry on a relatively normal existence. Ampules given hypodermically seem to have a more prompt and intense effect. Dosage is varied with the individual patient and the severity of the condition; frequent parenteral administrations are required in the more severe relapses. In the milder phases one to three 15 milligram tablets may be dissolved in six to eight ounces of water and a suitable amount of the solution, that is, one to two ounces, may be taken at intervals during the day, particularly preceding meals, thus enabling the patient to take an adequate diet.

The depression which has been described as following administration of prostigmin² was not observed in this case. The patient required and requested much increased dosage in the more critical phases. The absence of depression following administration of prostigmin has been observed by others also.¹⁶ Other undesirable side-effects such as nausea, salivation, dizziness, diarrhea, perspiration, muscle pains, cramps and vomiting may be abolished by simultaneous administration of atropine which, contrary to theoretic considerations, has been found not to diminish the beneficial clinical effect.¹⁷ Prostigmin has been found helpful in other lesions, chiefly those of the anterior horn and of the nerves; it is said to exercise a helpful influence in maintaining muscle nutrition where the nerve supply has been impaired.¹⁸ Refractoriness to prostigmin has been observed particularly after continued dosage. Discontinuing administration for thirty-six to forty-eight hours has been found helpful in improving the response.¹⁹

The manner in which beneficial results attributed to the use of glycine are produced is not well understood. Although blood creatinine is normal, and creatin and creatinine excretion are usually not strikingly abnormal in cases of myasthenia gravis, the administration of glycine has been followed by an increased creatin and creatinine excretion.^{4 and 5} On the other hand, in one case with a definite negative nitrogen balance, administration of glycine produced a reduction in the net loss of nitrogen.³ Glycine administration has also been regarded as having a favorable influence on "non-specific" fatigability,⁵ much smaller doses, (less than three grams daily), being required than in myasthenia gravis, (15 to 30 grams). A number of observers have found glycine of little or no clinical value in myasthenia gravis.

Ephedrine appears to have been largely supplanted by prostigmin, since the latter produces a

more pronounced and complete result with less of the undesirable side-effects.^{11 and 15} Ephedrine and benzedrine have been found helpful as adjuvants to prostigmin therapy.¹⁹

Varied opinions are held regarding the value of potassium chloride. According to some observers it has been helpful in certain cases.¹⁷ Other observers found that it produced a demonstrable improvement in large doses (ten to twelve grams daily) but these were nauseating, and in smaller doses it was found to be helpful as an adjuvant to prostigmin.

The value of educating the patient in the course of the disease and in self care has been pointed out by Boothby.² This is directed particularly toward the prevention of injuries and the use of a tube for feeding. It is wise also to instruct the patient or a member of the family in the parenteral administration of prostigmin. Surgery is necessary for coincidental conditions at times. A stormy convalescence following a thyroidectomy²⁰ and a smooth convalescence following a hysterectomy²¹ have been reported. The subsequent course after operative procedures appears to depend upon the severity of the patient's myasthenia as well as the gravity of the operation. Roentgen treatment of cases in which the thymus is not evident has been without benefit. The usefulness of mechanical aids, the oxygen tent, the respirator and suction apparatus is demonstrated in the case described.

Prognosis.

The prognosis has been demonstrated as improved. Death does not occur from myasthenia gravis unless the cardiac or respiratory muscles are involved. Injuries, including fractures from falls, may result from weakness of the leg muscles.² Death from paralysis of the muscles of deglutition and respiration is said by Ayer⁶ to be the usual fate. As has been stated the symptoms have usually been found to be exaggerated at the time of menstruation. The use of prostigmin with or without adjuvants permits many of these patients to lead a normal or near normal existence. Boothby⁵ compared a mortality rate of 70 per cent, given by Goldstein in Oppenheim's textbook, with thirteen deaths in sixty-five cases seen at the Mayo Clinic in the three years previous to 1935.

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CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

SULFANILAMIDE TREATMENT OF URINARY TRACT INFECTIONS

R. H. FLOCKS M.D., and R. J. PRENTISS, M.D.
Department of Urology, College of Medicine
State University of Iowa, Iowa City

Sulfanilamide is a distinct addition to the chemotherapy of urinary tract infections. Since its advent several years ago it has replaced, to a very large extent, dye materials such as methylene blue and serenium, the ketogenic diet, mandelic acid derivatives and neoarsphenamine, although these substances are useful in certain conditions. The following is an analysis of the use of sulfanilamide in the treatment of 238 patients with urinary tract infection at the University Hospitals. The most useful modes of administration, the results to be expected from its use in the various types of urinary tract infection according to the causative organism, and the location and type of the infection are described.

SUBJECTS

The subjects of this study were 238 patients with urinary tract infection treated during the year 1937-38. (See Tables I and II). Characteristics of this group which make it of special inter-

est are: first, a preponderance of males; second, a relatively high percentage of males over sixty years of age who have had operative procedures performed upon the bladder or prostate gland; third, a high proportion (171 of 238 patients) with complications of the primary infection, or associated disease in the urinary tract (the latter included perirenal and cortical abscess, interstitial cystitis, carcinoma of the urinary tract, severe uremia, stone, vesical diverticula and obstruction due to acquired or congenital conditions of the urinary tract such as stricture of the urethra, prostatic hypertrophy and congenital stricture at the ureteropelvic junction); and fourth, a small proportion of gonococcus infection in the total group. The majority of the patients had mixed infections.

TABLE I

SEX

Males	209
Females	29

AGE

2-20 years	10
20-40 years	49
40-60 years	46
60-80 years	113
80-85 years	20

TYPE OF INFECTION

Sepsis after prostatic and bladder operations	110
Complicated urinary tract infections	61
Uncomplicated urinary tract infections	45
Gonorrhea	22

TABLE II—BACTERIA CULTURED FROM 149 PATIENTS'
BLOOD AND/OR URINE

<i>Bacillus coli</i>	42
<i>Staphylococcus albus</i>	25
<i>Staphylococcus aureus</i>	21
<i>Bacillus proteus</i>	19
<i>Streptococcus viridans</i>	14
<i>Streptococcus non-hemolyticus</i>	10
<i>Nonspecific streptococcus</i>	4
<i>Bacillus pyocyaneus</i>	4
<i>Streptococcus hemolyticus</i>	3
<i>Micrococcus tetragenous</i>	3
<i>Aerobacter aerogenes</i>	2
<i>Fecalis alcaligenes</i>	1
<i>Streptococcus fecalis</i>	1

METHOD OF ADMINISTRATION

Oral, and/or subcutaneous methods of administration were employed in all patients. In addition local lavage was used in a few. Intravenous administration of the drug was not employed. The manner of administration and dosage in any patient varied with the following conditions: those unable to ingest the drug, or those who tolerated oral medication poorly, received it subcutaneously; proper treatment of severe infections demanded early high blood and urinary concentration of sulfanilamide; therefore these patients were given the drug by clysis in larger amounts; patients with poor renal function developed early high blood concentration of sulfanilamide; therefore large doses were unnecessary.

The oral administration of sulfanilamide was used whenever possible and the method consisted

essentially of divided daily doses of 6.0 grams for two or three days after which 4.0 grams were given for four or five days. This dosage was found to produce satisfactory urinary and blood concentration. Sodium bicarbonate in divided doses of 3.0 to 4.0 grams was administered simultaneously in order to combat gastric distress and acidosis.

In patients tolerating oral administration poorly or where rapid high concentration of the drug in the blood and urine was desired, a subcutaneous administration of a solution, prepared by dissolving 0.8 gram of pure but not sterile sulfanilamide powder in 100 cubic centimeters of normal saline at just below the boiling point, was employed. This solution was freshly prepared and given after cooling to body temperature. The daily dosage was somewhat higher with this method than with the oral, that is, 6.4 to 9.6 grams for the first two or three days, and 3.2 grams for the next three or four days. As before, sodium bicarbonate was also given by mouth.

Lavage of the kidney pelvis or urinary bladder with the 0.8 per cent solution was used in only a few patients and was tolerated well. At times striking improvement was noted after this mode of treatment.

RESULTS

The results of this study are summarized in Tables III, IV, V, VI and VII, and in general agree with the results of others. Sulfanilamide is a distinct and important addition to the chemotherapy of urinary tract infections.* In this particular group of patients, however, three facts which need emphasis in the consideration of sulfanilamide therapy in urinary tract infections presented themselves.

1. Contrary to the general opinion concerning infections elsewhere in the body, the character of the infecting organisms made no significant difference in our results. Equally good results were obtained in the presence of colon bacillus, staphylococcus, proteus and mixed infections when other conditions were similar. This indicates that the drug may be given in any urinary tract infection with the reasonable expectancy of a good result.

2. On the other hand, the presence of some complicating condition such as hydronephrosis, etc., very definitely lowered the efficacy of the drug. Contrasted to the 90 per cent good results

obtained in uncomplicated infections are the 65 to 75 per cent good results obtained in the presence of complications. This is a significant finding since it emphasizes the need for recognition and therapy of associated processes before better results are to be obtained in this group of patients. Despite complications, however, the results with sulfanilamide in this group were considerably better than those obtained previous to its advent. However, it must be emphasized that the disappearance of pyuria does not indicate a cure of the primary disease. Sulfanilamide, by producing remissions, may mask the signs of hidden and progressing disease which has been inadequately diagnosed and treated. Therefore, recurring infection necessitates a thorough urologic investigation.

3. The drug is extremely valuable in the treatment of sepsis after bladder and prostatic operations, where the results are often very striking.

An analysis of the results of sulfanilamide therapy in a group of 238 patients with urinary tract infection indicated that success depends not so much upon the character of the infecting organism as upon the coincidental presence of associated urinary tract disease and on the nature of that disease.

TABLE III—RESULTS ACCORDING TO INFECTING ORGANISM

Organisms	Excellent	Good	Failure
	%	%	%
Bacillus coli	66.6	19.2	14.2
Staphylococcus albus	31.3	56.2	12.5
Staphylococcus aureus	14.2	57.4	28.4
Bacillus proteus	50.0	12.5	37.5
Mixed infections	38.6	34.1	28.3

TABLE IV—RESULTS IN UNCOMPLICATED INFECTIONS

	Acute	Chronic
	%	%
Excellent	88.0	55.0
Good	4.0	40.0
Failure	8.0	5.0

TABLE V—RESULTS IN COMPLICATED INFECTIONS

	Acute	Chronic
	%	%
Excellent	56.5	21.0
Good	18.5	44.0
Failure	25.0	35.0

TABLE VI—RESULTS IN SEPSIS AFTER BLADDER AND PROSTATIC OPERATIONS

	%
Excellent	55.0
Good	31.0
No benefit	14.0

TABLE VII—RESULTS IN GONORRHEA

	%
Cured	20.0
Benefited	70.0
No benefit	10.0

*More recently three other drugs (sulfapyridine, disulon, and 338A) of the sulfanilamide series have been employed in this clinic for the treatment of urinary tract infections. All three produced good results; however 338A was most satisfactory since it seems equally as effective as sulfanilamide and less toxic. The 338A was obtained from Schering Corporation of Bloomfield, New Jersey.

THE FINLEY HOSPITAL CLINICO- PATHOLOGIC CONFERENCES

INCIDENCE OF MALIGNANT DISEASE IN 670 NECROPSIES

F. P. McNAMARA, M.D., Dubuque

The analysis of our series of 670 necropsies shows that consistently, year after year, malignant new growths have been the most important cause of death. While admittedly, the series is too small to be of great statistical value, nevertheless the fact that cancer accounted for 21 per cent of all deaths makes one wonder whether the disease is not actually the leading cause of death. Against such a viewpoint, it may be argued that because of greater interest in cancer, members of the medical profession intensify their efforts to obtain consent for necropsies in such cases. While this may be true, the argument loses some of its force when it is realized that heart disease, especially coronary thrombosis, has been a subject of the most intense interest during the last decade. If heart disease is the leading cause of death, would it not be expected to appear as such even in our short series? The fact is that until necropsies are performed on all fatal cases, the leading cause of death will be unknown.

The following tables include as malignant new growths, all brain tumors because of their location and regardless of their histologic appearance. The leukemias and Hodgkin's disease are also considered malignant tumors although the theoretic objections to classifying them as such are well known. In Table I the incidence of malignant tumors which are the primary causes of death is compared to the other causes of death by systems.

TABLE I. INCIDENCE OF PRIMARY CAUSES
OF DEATH BY SYSTEMS

Malignant disease	141
Other Diseases	
Digestive system	101
Circulatory system	91
Accidents	74
Respiratory system	62
Genito-urinary system	43
Central nervous system	33
Infections	31
Skin, bones, joints	10
Alcoholism	9
Suicide	8
Homicide	7
Blood	4
Status thymicolymphaticus	4
Undetermined	4

Diseases of Newborn

Congenital defects	15
Subtentorial hemorrhage	13
Other diseases	8
Stillborn	12

It will be noted that deaths from malignant disease exceeded all those from other diseases of the digestive tract and circulatory system by 40 per cent and 50 per cent, respectively. Cancer accounted for 21 per cent of all the deaths, whereas digestive diseases aside from carcinoma accounted for 15 per cent and circulatory diseases for 13.6 per cent. In addition to the malignant tumors which were the primary causes of death, there were sixteen other instances in which they were incidental or only contributory causes of death. The incidence of the various malignant neoplasms encountered in the series is shown in Table II.

TABLE II
MALIGNANT TUMORS IN 670 NECROPSIES

Carcinomas	
Stomach	23
Colon and rectum	14
Ovary	11
Gallbladder and ducts	10
Pancreas	10
Kidney	7
Lung	7
Breast	7
Prostate gland	6
Skin	6
Uterine cervix	4
Uterine fundus	3
Urinary bladder	3
Thyroid	2
Duodenum	1
Liver	1
Nasopharynx	1
Larynx	1
Tongue	1
Gums	1
Lip	1
Esophagus	1
Dura	1
Sarcomas	
Melanoma	3
Bone	2
Trachea	1
Retroperitoneum	1
Lymphoblastomas	
Lymphosarcoma (cervical, thoracic and mesenteric)	4
Myelogenous leukemia	3
Lymphatic leukemia	3
Hodgkin's disease	3
Myeloma	1
Monocytic leukemia	1

Nerve Tissue and Brain Tumors

Gliosarcoma	4
Spongioblastoma	2
Meningioma	3
Hemangioma	1
Neurocytoma, adrenal	1

Teratomas

Chorionepithelioma, testis	1
Teratoma, sacral region.....	1
Total	157

The number of patients included in the above list is 155, since two of them had two separate malignant neoplasms. Thus 23 per cent of all patients in the series had cancer. Clinically, 124 (79 per cent) were correctly diagnosed as to the presence of malignancy, either primary or metastatic. In seven others (4.4 per cent) the diagnosis was suspected, leaving 26 instances (16.6 per cent) in which the diagnosis was not made. Probably the percentage of accurate diagnosis would have been higher if the patients had reached the hospital in sufficient time for more complete studies. Too frequently patients were admitted only when they were so extremely ill that adequate study was impossible. Too often perforations of the stomach or intestine with peritonitis, intestinal obstruction or late evidences of metastases, usually in the liver or lungs, were the chief complaints on admission. The fact that late cases predominated is furthermore indicated by the fact that the primary sites of the neoplasms were diagnosed in only 103 cases (66 per cent).

Whether the late admission to the hospital or in other words the late diagnosis of the neoplasms, was the result of procrastination on the part of the patient or of the doctor is impossible to determine from the clinical records. The careful elicitation of the onset of the patient's symptoms, and the time of the first visit to his or her doctor is rarely included in the clinical record. From the few records in which such data are mentioned it is safe to assume that altogether too frequently each group is somewhat at fault. In some instances, patients with suggestive symptoms had consulted one or more doctors without an exact diagnosis being made. In others, the patients failed to seek medical advice for one reason or another until their condition was hopeless. Obviously unless each group does its part in the control of cancer, the high mortality rate from the disease will persist and probably will increase. Patients must be taught the significance of signs and symptoms which may indicate cancer; they must be trained to seek early medical advice and they must be taught the dangers of self diagnosis and medication. They must be made to realize that their

hope of cure largely depends upon early diagnosis. This knowledge cannot be instilled into the average mind in a day, a week or a month; the task will be accomplished only after years of persistent education. The medical profession often appears to forget this fact and seems to assume that statements made in lectures to lay groups are fully understood and permanently recorded for future use in the minds of the listeners. This is not true, and only through constant repetition will the significance of the facts presented become a part of the mental processes of most individuals.

For its part, the medical profession must learn to anticipate the possibility of cancer in patients with slight symptoms, and physicians must make every possible effort to reach an exact diagnosis at the first visit of the patient. Probably not over ten per cent of patients with the signs or symptoms of cancer will actually have the disease. Nevertheless, one must make every effort to detect the disease early in that ten per cent. When detected, adequate treatment must be given. This signifies the complete eradication of the neoplasm whatever method is used to accomplish it.

CONCLUSION

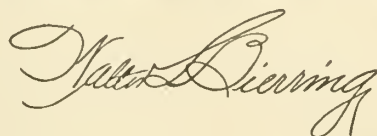
In this series of necropsies cancer accounted for twenty-one per cent of all deaths and was the leading cause of death. This fact emphasizes the importance of malignant disease as a medical problem. The solution of the problem demands the intelligent cooperation of the lay public with an enlightened medical profession which is alert to detect, not late but early cancer. In order to obtain the necessary cooperation, prolonged and persistent education of each group will be necessary.

CHANGE IN PUBLICATION DATE

The Committee on Publications of the Iowa State Medical Society, composed of the Board of Trustees, the Editor of the JOURNAL and the Secretary of the State Society has officially changed the publication date of the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY from the tenth to the first of each month. Your April issue is being mailed a few days earlier than usual, and beginning May 1, your state medical JOURNAL will reach you on the first day of each month.

The deadline for material to be included in any particular issue has been set as the fifteenth of the month preceding that issue. Material for the May number must reach the central office by April 15; copy intended for the June issue must be in our hands by May 15. It is hoped that all members will keep this change of date in mind when submitting material for publication.

STATE DEPARTMENT OF HEALTH



IOWA PUBLIC HEALTH MEETING

The Fourteenth Annual Meeting of the Iowa Public Health Association will be held Tuesday, April 30, at the Hotel Savery in Des Moines. The program will feature the presentation of a number of subjects which will be of special interest to physicians of Iowa as well as to public health workers. The program committee has been unusually fortunate in the number of out-of-state guest speakers who have accepted the invitation to take part in the meeting.

Cancer

"Medical and Public Health Aspects of the Control of Cancer" is the subject assigned to Leonard A. Scheele, M.D., Washington, D. C., surgeon, United States Public Health Service.

Recent Developments in Sanitation

Mr. Leslie C. Frank, Washington, D. C., senior sanitary engineer, chief, Sanitation Section, United States Public Health Service, will have as his subject "Recent Developments in the Field of Sanitation."

Maternal-Child Health Service

Guest speakers at the morning session will be Clara E. Hayes, M.D., Washington, D. C., medical officer, Children's Bureau, on the subject, "A Resumé of Recent Progress in Maternal and Child Health Services throughout the United States," and F. Ruth Kahl, R.N., Chicago, regional public health nursing consultant, United States Public Health Service, on "Generalized Public Health Nursing."

Medicine and Public Health

The noon luncheon meeting will be addressed by W. W. Bauer, M.D., Chicago, director of the Bureau of Health Education of the American Medical Association, on the subject of "Interdependence of Medicine and Public Health."

Water and Air Bacteria

"Difficulties and Limitations in Bacteriologic Examination of Water" and "Studies of Air-Borne Infections" are subjects to be presented respectively by Max Levine, Ph.D., Ames, professor in charge, Department of Bacteriology, Iowa State College, and by Roland Rooks, M.A., Ph.D., Iowa City, associate professor of hygiene and preventive medicine, University of Iowa.

Scarlet Fever

The subject "Obstacles to Effective Control and Prevention of Scarlet Fever," will be presented by Gaylord W. Anderson, M.D., Minneapolis, professor and head of the department of preventive medicine and public health, University of Minnesota.

Significance of Public Health

Reginald M. Atwater, M.D., of New York, executive secretary of the American Public Health Association, will be guest speaker at the evening banquet of the Association on the subject, "The Increasing Social Significance of Public Health."

Physicians are invited to attend all sessions of the coming meeting of the Iowa Public Health Association.

PNEUMONIA TYPING STATIONS ACTIVE

A summary of reports received from typing stations shows that during December, 1939, January and February, 1940, specimens totaling 1,170 were examined by the Neufeld method. Among total specimens examined, 722 or 61.7 per cent showed the presence of pneumococcus. The incidence of various types of pneumococcus among 678 speci-

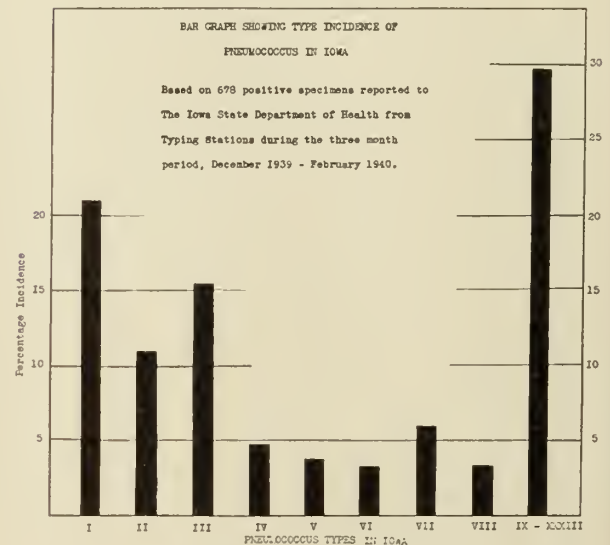
mens in which specific typing was satisfactorily determined, is indicated in the accompanying table (Table I).

The bar diagram (Fig. 1) is based on incidence percentages which appear in Table I. During the three-month period concerned, the first eight types of pneumococcus accounted for 70 per cent and the remaining types (Types IX-XXXIII) 30 per cent of the total specimens which were typed successfully.

TABLE I—TYPE INCIDENCE OF PNEUMOCOCCUS IN IOWA
Based on Reports to the Iowa State Department of Health from
Typing Stations, for December, 1939, January and February, 1940

Type	Dec. 1939	Jan. 1940	Feb. 1940	Three-Month Total	
				Number	Per cent
I	27	53	63	143	21.09
II	20	34	23	77	11.36
III	21	26	55	102	15.04
IV	5	13	14	32	4.72
V	4	12	11	27	3.98
VI	4	1	19	24	3.54
VII	9	12	25	46	6.78
VIII	3	10	11	24	3.54
IX	5	—	11	16	2.36
X	3	3	4	10	1.47
XI	4	7	6	17	2.51
XII	—	3	2	5	.74
XIII	1	1	—	2	.29
XIV	4	6	6	16	2.36
XV	1	4	4	9	1.33
XVI	3	3	5	11	1.62
XVII	2	5	6	13	1.92
XVIII	3	9	9	21	3.10
XIX	5	6	10	21	3.10
XX	2	4	4	10	1.47
XXI	2	1	1	4	.59
XXII	7	4	—	11	1.62
XXIII	—	3	2	5	.74
XXIV	—	3	2	5	.74
XXV	1	—	2	3	.44
XXVI	—	2	3	5	.74
XXVII	2	—	—	2	.30
XXIX	2	1	5	8	1.18
XXXI	—	—	2	2	.30
XXXII	2	—	4	6	.88
XXXIII	—	—	1	1	.15
Totals	142	226	310	678	100.00

FIGURE 1



PREVALENCE OF DISEASE

	Feb. '40	Jan. '40	Feb. '39
Diphtheria	13	17	29
Scarlet Fever	303	361	595
Typhoid Fever	10	5	3
Smallpox	84	64	180
Measles	695	264	687
Whooping Cough	37	24	86
Epidemic Meningitis	3	1	1
Chickenpox	229	352	446
Mumps	553	249	234
Influenza	223	44	549
Pneumonia	436	253	193
Poliomyelitis	7	12	0
Tuberculosis (Pulmonary)	62	48	56
Tularemia	4	38	2
Undulant Fever	18	22	6
Gonorrhea	126	172	106
Syphilis	270	267	222

Most Cases Reported From
Black Hawk, Scott
Polk, Dubuque, Black Hawk,
Bremer
(For the State)
Carroll, Muscatine
Des Moines, Clarke, Lee, Henry
Dubuque, Pottawattamie, Hardin
(For the State)
Marshall, Lee, Woodbury
Des Moines, Page, Mills, Lee,
CCC Camps
Johnson, Buchanan, Boone
(For the State)
(For the State)
(For the State)
(For the State)
(For the State)
(For the State)

The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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VOL. XXX APRIL, 1940 No. 4

TO THE MEMBERS OF THE IOWA STATE MEDICAL SOCIETY

Des Moines once more is pleased to entertain the Iowa State Medical Society, and as co-host, the Polk County Medical Society extends a gracious welcome. We esteem it a privilege to be honored with the meeting of your society in this city. The distinguished guests appearing on your program are always an inspiration toward better medicine and surgery, and the new acquaintances and friendships made possible by your state meeting pay tribute to the solidarity of the profession in Iowa. The Polk County Medical Society brings to you at your annual session a most sincere wish that you may find in this meeting a happy response to all that is good in medicine.

HOWARD D. GRAY, M.D., President
Polk County Medical Society

THE ANNUAL SESSION

The Eighty-ninth Annual Session of the Iowa State Medical Society will be held in Des Moines on May 1, 2 and 3, and from all indications the 1940 state meeting should establish new records in interest and attendance. The complete program is carried in the first section of this issue of the Journal, and it can readily be seen, from the subjects to be discussed and the speakers who have been secured, that the Program Committee has spared no efforts in presenting an interesting and valuable annual session to the members of the society.

Much has been written and spoken during the last few years on the necessity of postgraduate education for the physician who wishes to keep abreast of the many advances in medical science.

Perhaps the finest medium for this type of graduate study is the annual meeting of a state medical society. This meeting is the optimum size to elicit adequate and stimulating discussions on questions of vital importance to all medical men. The morning sessions have been planned to appeal to practitioners on general subjects, and the afternoon sectional meetings offer a wide selection of discussions from a medical or surgical viewpoint. The showing of scientific moving pictures has become increasingly popular, and this feature of the program has been greatly expanded this year. There will be continuous showing of scientific films during Wednesday and Thursday from 9:00 a. m. to 5:00 p. m., with more than twenty-five subjects being presented in pictorial form.

It is expected that the scientific and commercial exhibits will attract a large number of our members. Commercial firms devote many hours and considerable expense in preparing worthwhile exhibits of their products. Particularly praiseworthy is the attitude of these exhibitors and their representatives at state medical meetings. In the main, these agents make no effort to promote actual sales; they are pleased merely to have the opportunity of explaining the merits of their products and becoming better acquainted with the medical profession in Iowa. A new feature of this year's program is a recess during the morning sessions to allow members time to visit the exhibits without missing any of the papers. It is hoped that physicians will avail themselves of this opportunity, and give genuine and courteous attention where it is amply deserved.

Reports from those in charge of the Hobby Exhibit indicate renewed interest in this field. This is the third consecutive showing of doctors' hobbies, and more requests for space have been received than in any previous year. The Sixth Annual Golf Tournament will be held Tuesday, April 30, the day preceding the state meeting, and those who enjoy this form of sport will not want to miss the companionship of the day's activities. A more complete announcement of the tournament will be found elsewhere in this issue. The smoker on Wednesday night and the annual banquet on Thursday evening are also occasions on which the doctors relax, making new acquaintances and renewing old friendships.

The Journal feels no hesitancy in urging members to attend this meeting. Des Moines is easily accessible from all parts of the state; the knowledge gleaned from the scientific portions of the program will make the trip worthwhile, and the pleasure derived from fellowship with your professional colleagues will justify the attendance of even the busiest practitioner.

HEMATURIA FROM SULFAPYRIDINE THERAPY

There have been numerous reports in the literature of hematuria resulting from sulfapyridine therapy, where withdrawal of the drug has resulted in a cessation of the hemorrhage. Crystals of the acetylated derivative of sulfapyridine are found in the urine and the hematuria is attributed to urolith formation.

Antopol and Robinson* in an experimental study on animals report the pathologic and histologic changes following the oral administration of sulfapyridine. Their findings give a much clearer understanding of the pathologic potentialities of the chemotherapy of pneumonia. In the study, urolith formation was not observed in dogs or mice even after the animals had received doses of twenty grams per kilogram of body weight. However, concretions were frequently found in rabbits given ten to fifteen grams per kilogram, in rats given five grams per kilogram, and in monkeys fed 0.25 of a gram per kilogram. Concretions were observed after the administration of a large single dose of the drug, but the results were more striking after repeated doses on successive days.

The pathologic results were essentially the same in the rat, rabbit and monkey. The urolith formation was often unilateral. Even after twenty-four hours of administration, aggregates of crystals were found in the ureter on autopsy. After five to ten days of administration, concretions were frequently found at the ureterovesical junction. The calculi were soft and friable. The bladder was often edematous, the ureters dilated and thinned out, and the kidney was edematous and enlarged one and one-half to two and one-half times its normal size. Bloody urine was found in the dilated renal pelvis and ureter, and at times the renal pelvis was filled with fibrin and crystals. All of the monkeys showed an increased retention of urea nitrogen, varying from a slight elevation to 100 milligrams per 100 cubic centimeters of blood.

Histologic changes in the kidney revealed degeneration varying from mild to most severe, especially in the proximal convoluted tubules. Following excessive dosage marked changes occurred in the glomeruli and in Bowman's capsule. At times extremely hemorrhagic ureteritis and pyelitis occurred, far in excess of that which might be attributed to calculus. Occasionally thrombi were encountered in the veins of the kidney.

The authors conclude from their study that no definite decision can be made as to the primary lesion; whether the precipitation of acetylated sul-

fapyridine in the urine is always primary, whether it depends on initial degenerative changes in the renal parenchyma, or is perhaps a combination of both processes. However, since degenerative changes are found without urolith formation it seems clear that parenchymal damage is not dependent on the formation of concretions. The formation of crystals may be initiated by degenerative renal or vascular changes, or it may be quite independent of these factors.

In a series of five monkeys, all of which received four grams of sulfapyridine per kilogram of body weight for ten days, four animals killed on the last day of feeding showed urolithiasis. The fifth animal killed seventy-nine days after treatment showed no concretions, but there was definite evidence of transient urinary obstruction involving the ureters and kidney. This experiment indicates that the obstructing crystals may either be redissolved or washed out.

This interesting experimental study should result in a keener appreciation of one of the potential hazards of sulfapyridine therapy, and impress upon the physician the necessity for frequent urinalyses in the patient receiving chemotherapy.

BULLETIN OF THE IOWA DIVISION WOMEN'S FIELD ARMY

Three years ago the Iowa Division of the Women's Field Army began its educational program against cancer. This was in response to a need which had been long recognized by the medical profession. It was predicated upon facts which may be summarized as follows:

1. The control of cancer depends upon the employment of measures of personal hygiene and certain preventive and curative measures, the success of which depends upon the intelligent cooperation of the patient and the physician.

2. Persons who have cancer must seek competent medical advice early in order to have a fair chance of cure. This applies to all forms of cancer. In some forms it offers the only possibility of cure.

3. Cancer in some parts of the body can be discovered in a very early stage and if these cases are treated properly, the prospect of permanent cure is good.

4. The public must be taught the earliest danger signals of cancer which can be recognized by a person without special knowledge of the subject, and induced to seek competent medical advice when any of these indications are believed to be present.

5. Carefully conducted periodic health examinations in which the physician is alert to detect

*Antopol, William, and Robinson, Harry: Pathologic and histologic changes following oral administration of sulfapyridine. Arch. Path., xxix:67 (January) 1940.

precancerous lesions or early cancer, are a most effective method of preventing cancer or of making an early diagnosis and, therefore, are an integral part in the control of the disease.

Since the inception of its work in Iowa, the Women's Field Army has endeavored to carry out its program with the above viewpoints in mind. At first it was necessary to depend upon lectures, exhibits and the distribution of literature during the annual campaigns for enlistments. The Executive Committee early recognized that such a program lacked continuity and, therefore, lost some of its effectiveness. This weakness was overcome in part by mailing informative letters to contributors at irregular intervals. This was only a temporary measure and the committee had as its aim, a publication which would be issued regularly and which would present a true picture of the campaign against cancer in Iowa for Iowans.

This aim was fulfilled in February when the first issue of the Bulletin of the Iowa Division of the Women's Field Army made its appearance. This eight page pamphlet which is edited by Dr. E. D. Plass of the State University of Iowa, College of Medicine, will be mailed to all contributors and the medical profession of Iowa four times a year. The first issue contained several general articles on cancer as well as specific information on the work of the Iowa Division of the Women's Field Army. While designed primarily for lay readers, in it doctors will find interesting articles on various phases of the cancer program. The selection of the material, its arrangement and the general appearance of the publication have already received much favorable comment from both lay and professional readers. Unfortunately lack of funds limits its distribution in Iowa. Instead of about 7,000 there should be 70,000 readers in the state. Only when every county and district is active in the work of the Women's Field Army will wider distribution be possible. This is an essential part of the broad program to control cancer in Iowa. It deserves the full support of every doctor in the state.

NATIONAL CONFERENCE ON MEDICAL SERVICE*

Interest on the part of the medical profession in the economic side of the practice of medicine has developed rapidly in recent years. As president of the Iowa State Medical Society in 1932 Dr. Channing G. Smith first emphasized the importance of this subject in his president's address. The work of the Medical Economics Committee originally was that of investigating collection

agencies, studying fee bills, and occasionally taking up some other economic matter. Today this committee has the responsibility of studying many problems of vital importance to the profession. The same development has occurred on a national scale. The Bureau of Medical Economics of the American Medical Association is now one of the major activities of the association and has carried out many extensive studies of the various phases of medical economics.

In another way the interest of the profession in this subject is shown by the development of the National Conference on Medical Service. This organization had its inception ten or more years ago when the officers of the state medical societies of Minnesota, Wisconsin and Iowa met together each year at an informal gathering to discuss their common problems. In a few years two or three other midwestern state societies became interested and the Northwest Regional Conference was formed. The meetings were still informal in character, with officers of the participating state societies discussing problems of medical economics. During the last few years a formal program has been prepared, and meetings were held in Chicago, with representatives of an increasing number of states present. The 1939 meeting was largely attended and representatives from eastern and western states asked that they be included in the organization. As a result the name was changed to The National Conference on Medical Service and invitations were sent to every state medical society, suggesting that those interested in the subjects attend the meeting. More than two hundred physicians from twenty-five states were present at the meeting held in Chicago, February 11, 1940. The organization has no constitution or by-laws, and no dues or registration fees. Any physician interested in these matters is urged to attend and has the privilege of discussing the subjects presented. The expenses of the meetings have been borne in the past by the various state medical societies in turn.

Through the discussions at this meeting one has been able to follow closely the development, throughout the country, of various plans to meet the problems arising in the social and economic side of the practice of medicine. Each state seems to have the same group of problems arising, and each has spent much time, thought and energy in working out solutions for these problems. Early developments showed marked differences in the proposed plans. Difficulties with the various plans were reported and discussed, and in this clearing house each state received valuable aid in solving its problems from the experiences of the other states. In the meeting this year it was interesting to note

*From the Medical Economics Committee.

that, to a great extent, these matters in the various states are more and more conforming to common standards, and proposed plans for improving situations are similar.

More important than the actual plans developed, however, is the fact that medicine has awakened to its responsibility in acknowledging that the practice of medicine is not confined alone to caring for the sick and injured people of the country, but that there are economic and social aspects of great importance which must be considered. Our country has changed from a rapidly developing, rural nation, with certain types of opportunities always present, to one which has reached a certain saturation point in population and opportunities. Large industrial centers have been established in every state. Improvements in machinery and methods of production have reduced the number of men necessary to produce many articles. Economic changes called depressions have occurred, and many have been thrown out of work. The unemployment problem, the relief problem and many others of similar nature have arisen, and with all these have and will go changes in relation to illness and the provision of medical care.

The medical profession has done valiant service in past years, and is contributing more outstanding service now, in the development of the scientific side of medicine, in the relief of suffering and the actual cure of disease. New drugs are developed frequently; new methods of performing surgical procedures are constantly reducing mortality rates; the public is being educated in caring for its health and in securing competent medical attention when ill. In every way we are living up to our heritage and carrying on the duties, obligations and privileges of the practice of medicine. Parallel with this is now developing a study of the economic and social side of the practice of medicine. It will be necessary to study many suggested solutions to these problems. We will undoubtedly have to attempt economic and social remedies in the same experimental fashion that the research scholar applies new drugs and extracts. If they do not produce the desired results, they must be discarded, and new avenues explored.

As physicians we are always interested in the work of those who are constantly studying and experimenting on medical problems. As new drugs and methods are developed we inform ourselves of them, we weigh the probable benefits to our patients carefully, we study the reports of the clinical trials which have been carefully made under proper controls, and then formulate our opinions as to the merits of the matter under consid-

eration. This is done in a scientific way. We are, and should be, very critical in our analysis of these scientific developments. Our emotions are not involved; we do not rise in anger when they are discussed and malign the man who even thinks of any changes in our methods of handling disease. Too often when some matter of medical economics, or the social implications of medical practice are discussed, the major reaction is one of anger. The cool, considerate, scientific attitude is forgotten, and emotion rather than reason takes control. In discussions before scientific assemblies, presentations and remarks are considered and respectful, although opinions may differ radically. In our discussions in private or formal meetings covering medical practice forms and the work being done in an attempt to solve the existing problems, too often the motive of the essayist is questioned, and the discussor rises to indulge in a fling of oratory, with a great deal of anger, and much too little serious consideration. If these problems can be brought up and considered dispassionately; if we can realize that, for the most part, the efforts to solve these problems are being made by men who are very much interested in the practice of medicine, who give freely of their time and money to study these problems, we will much sooner find solutions for these problems, and at the same time retain to the greatest possible extent all the benefits of our present system of medical practice.

THE U. S. PHARMACOPEIAL CONVENTION

Attention of our readers is directed to the Pharmacopeial Convention which will be held in Washington, D. C., Tuesday, May 7, 1940. This body is composed of members who are sent as delegates by national and state medical organizations, schools of medicine and pharmacy, interested pharmaceutical manufacturers, and certain governmental services. The Convention meets once every ten years, and its chief function is the selection of the Committee of Revision of the U. S. Pharmacopeia.

There has been considerable agitation during the last few years for a radical change in the method of developing the Pharmacopeia Convention. Under the present arrangement each group entitled to representation is allowed to send three delegates. However, the majority of medical societies and medical schools have not wished to incur the expense of sending three delegates, while schools of pharmacy and pharmaceutical organizations usually have full representation. Only three state medical societies sent their allotted number of delegates to the 1930 convention, and half of

the state medical societies had no representation. The record for medical schools is slightly better: twelve sent three delegates each, but forty schools were represented by only seventy-one delegates instead of the 120 to which they were entitled. Other medical schools failed to send any delegates. Thus it can be seen that medical interests, if conflicting with pharmaceutical interests, would be hopelessly overridden. For this reason it has been suggested that one-sided representation could be corrected if only one vote was recorded for each organization. Another outworn provision is that only persons who attend the Convention are eligible for membership on the Revision Committee.

The medical profession should be adequately represented at the coming Convention, since any new procedures for improving the situation must necessarily emanate from this body. The Committee which the Convention will appoint will largely determine the policies of the twelfth revision of the U. S. Pharmacopeia. This volume has assumed particular significance because of its relation to the present Food, Drug and Cosmetic Act. The law provides that the Food and Drug Administration of the U. S. Department of Agriculture may enforce any standards set forth in the Pharmacopeia. Obviously it is of vital importance to physicians everywhere that the standards and provisions in the U. S. Pharmacopeia XII be those which will maintain the present high plane of medical practice.

Relations between the medical and pharmaceutical professions have been increasingly cooperative in recent years. Especially is this true in Iowa where pleasant relationships have existed for many years. It is to be hoped that a more equitable distribution may be worked out at the 1940 Pharmacopeia Convention for the betterment of conditions in the nation at large.

ARMY EXPERIENCE FOR PHYSICIANS

Recent months have witnessed an increase in the strength and activity of the United States Army, and a corresponding increase in the responsibilities of its medical components. Officers of the Medical Corps Reserve are being placed on duty throughout the medical organization of the Army.

Physicians under thirty-five years of age who wish to obtain extended active duty with the Army, but who do not hold reserve commissions, are being offered appointments in the Medical Corps Reserve in the grade of First Lieutenant, in order to permit them to be placed on such duty. Captains and lieutenants are at present

being offered excellent assignments throughout the continental United States, and it is possible that authority may be granted to permit some officers to go to Hawaii and Panama.

Application for one year of active duty, or for appointment in the Medical Corps Reserve with a view to obtaining one year of active duty with the Army, should be requested by a letter addressed to the Commanding General of the Seventh Corps Area, New Federal Building, Omaha, Nebraska. In addition the application should contain concise information regarding permanent address, temporary address, number of dependents, earliest date available for active duty, and that internship has been (or will be) completed. The application should be accompanied by a report of physical examination recorded on the regular army form which may be obtained from any army station.

Additional information may be secured from the office of the Seventh Corps Area in Omaha.

SIXTH ANNUAL TOURNAMENT IOWA STATE MEDICAL GOLF ASSOCIATION APRIL 30, 1940

On Tuesday, April 30, 1940, the Sixth Annual Iowa State Medical Golf Tournament will be held at the Des Moines Golf and Country Club, Des Moines, Iowa. We are hoping for a record attendance and promise everyone a very pleasant and perhaps profitable afternoon.

We expect to have a good assortment of prizes. An attempt will be made to work out a handicap basis so that everyone entering the tournament will have an equal chance of carrying off a prize regardless of his age, color of his hair, marital state or golfing ability. We are asking the golfers in each county society to contact every member who owns a golf club and get him here for an afternoon of relaxation and fun. Mention of the dinner to follow may be an added inducement. The tournament is strictly informal in every way and any member in good standing in the Iowa State Medical Society is eligible to participate. Each doctor should furnish his handicap attested by the local club professional or chairman of his local handicap committee.

A day in the open, spent with your colleagues, will lay the groundwork for the more serious part of the meeting. Make it your responsibility to urge every one to come and try to make this the largest and best tournament the Iowa State Medical Society has ever held. Notify the secretary of your intention to compete.

W. E. BAKER, M.D.,
President,
1102 Equitable Bldg.,
Des Moines, Iowa.

JOHN A. THORSON, M.D.,
Secretary,
700 Locust Street,
Dubuque, Iowa.

The Pathology of Chronic Ulcerative Colitis*

JAMES E. KAHLER, M.D., Des Moines
Pathologist, Iowa Methodist Hospital

There are a number of etiologically distinct chronic ulcerations of the large bowel. The disease of this type most commonly seen in office practice in this portion of the country has been described under the name "chronic ulcerative colitis". That this is a disease entity has been adequately proved, but there is still considerable discussion as to the etiology of the disease. The majority of the cases have been designated thrombo-ulcerative colitis by Bargen and are considered to be caused by a specific diplostreptococcus. For the remaining cases deficiency states, allergy, dysentery bacilli and other organisms are considered by some to have etiologic significance.

The appearance of the earliest phase of the disease is that of diffuse inflammation with scattered ecchymoses beneath the mucosa. This is occasioned by an active congestion associated with the formation of hyaline thrombi within the capillaries. The ecchymoses seen clinically are the result of small hemorrhagic infarcts produced by these hyaline thrombi. Edema resulting from the active hyperemia adds boggiess as an initial characteristic. The infarcts become purulent and appear grossly as small yellow points which are miliary abscesses beneath the epithelium. These abscesses later rupture through the overlying epithelium, producing small ulcers. The abscess formation is not related to the lymph follicles of the bowel.

The physician, however, is likely to encounter the disease at a later stage when the ulcers have enlarged, have become irregular in outline and have denuded so much of the bowel lining that only small islands and strips of mucous membrane remain. The mucosal tags are red and edematous; they bleed easily and are soft appearing. They seem friable and rounded, giving the impression that they can be easily scraped away in entirety. The bases of the ulcers are flat except for necrotic flecks of exudate and debris adhering to them. The bowel wall is thickened due to edema, hemorrhagic and leukocytic infiltration, as well as to beginning fibrosis.

In still later stages, the ulceration progresses

more deeply into the bowel wall, penetrating the muscular layers and at times even the serosa. Perforation of the colon occurs in about three per cent of cases. If deeply penetrating ulcers occur in the rectum, perirectal abscess results. Fibrosis is also progressive during the active phase of the disease resulting in thickening of all the layers of the bowel wall and consequent narrowing of the lumen. Stricture results in about eight per cent of cases. After several recurrences, the bowel is converted into a shortened, thickened, rigid tube the small lumen of which may be nearly filled with polyps.

In spite of the virulence of the disease within the colon, mesenteric thrombosis, pylephlebitis and liver abscess are rare. Perhaps the thrombotic tendency of the disease is the explanation for the infrequency of massive hemorrhage.

The most common and also the most dangerous complication of the disease is polyposis which occurs in ten to thirteen per cent of cases. These polyps may be purely inflammatory in type or they may be adenomatous. They not uncommonly become malignant; other types of malignancy such as sarcoma and diffuse carcinomatosis have been reported in association with chronic ulcerative colitis.

The usual site for the early phases of chronic ulcerative colitis is the rectum so that routine proctoscopic examination should enable most of the cases to be diagnosed early and with accuracy. Starting in the rectum the disease advances proximally in the bowel. However, it may begin anywhere in the colon and may in some instances affect isolated segments rather than progress in an orderly fashion from below upward. The lesion may begin in the cecum and only a few ulcers appear in the rectum. The disease seldom passes the ileocecal valve.

Although the condition is most common during early adult life, it may occur at any period and has been observed in a child two years of age. The disease may be limited to a single attack in an individual or there may be many relapses after varying intervals of freedom from symptoms. It occasionally occurs in a fulminating rapidly fatal form.

*Editor's Note: This editorial has been prepared upon request. Other articles on the pathology of various disease processes will be found in previous issues.

WOMAN'S AUXILIARY NEWS

MRS. FRED MOORE, *Chairman of Press and Publicity Committee*
4913 Grand Avenue, Des Moines

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THE ELEVENTH ANNUAL CONVENTION

Dear Auxiliary Members:

The Official Call has gone forth with the March reprint, for the Eleventh Annual State Meeting of the Woman's Auxiliary to the Iowa State Medical Society, which will be held in Des Moines on May 1 and 2, with headquarters and registration at the Savery Hotel.

The Convention will open on Wednesday, May 1, with a preconvention luncheon at 12:15 at the Savery Hotel, for the officers, the chairmen of the standing committees, county presidents and past presidents who wish to attend. At 3:00 p. m. members and guests will be taken on a drive, and to a tea at the home of Dr. and Mrs. Howard D. Gray. A bridge party will be held in the Savery Hotel, beginning at 7:30. Auxiliary members and all doctors' wives are invited.

The business session will open on Thursday morning, May 2 at 9:00 a. m. This will include reports of all the officers and the chairmen of committees, followed by an address on "Character and Personality Development" by Dr. John I. Marker of Davenport.

The Woman's Auxiliary luncheon at the Savery Hotel is scheduled for 12:15. At this time we shall receive greetings from Dr. Felix A. Hennessy, of Calmar, president of the Iowa State Medical Society, and from Dr. F. P. McNamara, of Dubuque, president-elect of the State Society, and a report from our Advisory Councilor, Dr. C. B. Hickenlooper of Winterset. Mrs. Rollo K. Packard of Chicago, Illinois, president of the Woman's Auxiliary to the American Medical Association, will be a featured speaker at this luncheon.

The afternoon session will follow the luncheon and will consist of reports from the county presidents, the award of the Gertrude Downing Membership Cup, report of the winning essay, election and installation of officers. The annual banquet for the doctors and their wives, Thursday evening at the Hotel Fort Des Moines, closes the convention for the Auxiliary.

Your president and officers are anxious that this annual meeting be well attended. We have made considerable progress during the past year. The loyal support of the officers and the splendid cooperation of the entire organization made this possible. Come and meet our national president, Mrs. Packard. She will have an inspiring message for each one of us, and I shall be happy to greet and meet you all at the State Convention.

Mrs. E. A. Hanske, President

Dubuque County

Twenty-two members of the Woman's Auxiliary to the Dubuque County Medical Society met Tuesday, March 12, at the Elks Club in Dubuque, for luncheon and business meeting. Mrs. E. A. Hanske, president of the state organization, was present and gave a very instructive talk. We were pleasantly surprised when she informed us that we had won honorable mention for our quota in Hygeia subscriptions. Mrs. Donovan Ward, retiring president, conducted the meeting and the annual election of officers was held. New officers for the coming year are as follows: Mrs. M. J. Moes, president; Mrs. M. H. Scheele, first vice president; Mrs. G. C. Fritschel, second vice president; Mrs. Ray R. Harris, secretary and treasurer; and Mrs. William Langford, assistant secretary and treasurer.

Mrs. Donovan Ward

Jackson County

On Thursday, March 21, the members of the Woman's Auxiliary to the Jackson County Medical Society joined their husbands at a six-thirty dinner at the Hurst Hotel in Maquoketa. After the dinner the women retired for a business meeting. Mrs. E. V. Andrew of Maquoketa and Mrs. E. L. Lampe of Bellevue were appointed as delegates, and Mrs. George C. Ryan of Maquoketa as alternate delegate to the state convention. Nine members and two

guests were present. After adjournment of the business session, a social hour was spent playing bridge.

Mrs. E. A. Hanske

Polk County

Members of the Woman's Auxiliary to the Polk County Medical Society met for a luncheon at Younkers Tea Room, Tuesday, March 5. The program consisted of greetings from Dr. Howard D. Gray, president of the Polk County Medical Society, music by students from Drake University, and a report by Mrs. Everett M. George on the work being done by the Des Moines Committee on Community Resources. The guest speaker, John H. Peck, M.D., superintendent of the State Sanatorium at Oakdale, gave us an interesting description of the purpose and operation of the institution.

Mrs. Henry G. Decker, Secretary

THE NATIONAL CONVENTION

Your Press and Publicity Committee has received the following communication from Mrs. Carlton F. Potter of Syracuse, New York, chairman of arrangements for the annual convention of the Woman's Auxiliary to the American Medical Association. We are reprinting it, and sincerely hope that Iowa can be generously represented at the coming session.

"The Eighteenth Annual Convention of the Woman's Auxiliary to the American Medical Association will be held in New York, June 10-14, with headquarters at the Hotel Pennsylvania. The entire committee on arrangements is exerting every effort to make this meeting an outstanding one. I can assure you that everything possible is being done to arrange both a business and entertainment program which will be educational and inspirational.

"In view of the fact that the second edition of the World's Fair will accelerate advance hotel reservations, we hope you will request the members of your auxiliary to transmit their requirements at an early date. It is preferred that your reservations be made through the Housing Bureau which has been set up by the American Medical Association, under the chairmanship of Dr. Peter Irving, Room 1036, 233 Broadway, New York. Specify that you are a member of the Woman's Auxiliary and wish to stay at the Auxiliary's headquarters, Hotel Pennsylvania.

"The New York State Auxiliary is looking forward eagerly to the pleasure of being hostess to the members of the National Auxiliary next June. We shall keenly await the opportunity of serving you and all the other members of the Woman's Auxiliary to the American Medical Association."

Very cordially yours,

Mrs. Carlton F. Potter, Convention Chairman

SPEAKERS BUREAU ACTIVITIES

EXHIBIT AT ANNUAL SESSION

The Speakers Bureau will be one of the scientific exhibitors at the Eighty-ninth Annual Session of the Iowa State Medical Society in Des Moines, May 1, 2, and 3. At the request of the Committee on Scientific Exhibits, we will present our display which was first shown at the Ninetieth Annual Session of the American Medical Association in St. Louis last May. The exhibit is entitled "Ten Years of Postgraduate Medical Education in Iowa" and depicts the progress which Iowa has made since 1929 in the field of postgraduate medical education. Many of our members visited the booth in St. Louis and are familiar with the material set forth. However, a majority of our physicians were unable to view the exhibit at that time, and for this reason we are more than pleased to present it again for their benefit at our own meeting.

We believe the display will serve to acquaint our members with the work we are doing, and we urge you to call at Booth No. 6 in the Scientific Exhibits Room and review it. We are confident you will gain a clearer understanding of the operation, progress and development of postgraduate medical education carried on by the Speakers Bureau in your own state society.

IOWA FEDERATION OF WOMEN'S CLUBS BROADCASTS

The opening program in the 1940 series of broadcasts entitled "Keeping Well Folks Well," sponsored by the Iowa Federation of Women's Clubs, was presented by Dr. Daniel J. Glomset of Des Moines over KSO on Tuesday, January 9. Dr. Glomset spoke on "Health Resolutions for the New Year." Dr. Felix A. Hennessy of Calmar prepared and delivered the February address over Station WMT on Tuesday, February 13. His subject was "Worry Warps the World," and dealt with the problem of mental hygiene. Dr. John M. Hayek, director of the Child Health and Maternal Welfare Division of the State Department of Health, provided the third program in the series on Tuesday, March 12, at which time he presented his discussion of "Three Big Problems in Public Health." Dr. Addison W. Brown of Des Moines will participate in the series Tuesday, April 9. He will address his radio listeners at 1:30 p. m. on the subject, "Facts and Fallacies About Cancer." The May and June programs will be announced in an early issue of the JOURNAL. The entire 1939-1940 series has been arranged by the Speakers Bureau.

SOCIETY PROCEEDINGS

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held at the Fortner Hotel in Waverly, Monday, March 25. The program consisted of motion picture films on Transverse Cervical Cesarean Section, Latzko Extraperitoneal Cesarean Section, and Traumatic Surgery of the Extremities.

P. K. Graening, M.D., Secretary

Cerro Gordo County

The Cerro Gordo County Medical Society met in regular session Tuesday, March 12, at the Hotel Hanford in Mason City. Robert L. Parker, M.D., of The Mayo Clinic, Rochester, Minnesota, was guest speaker for the evening. His subject was Cardiac Neurosis. R. R. Flickinger, M.D., of Mason City, spoke on Polaroid Lens.

J. E. Houlahan, M.D., Secretary

Fremont County

The annual election of officers for the Fremont County Medical Society was held Monday, March 11, at Sidney, with the following results: Dr. Ralph Lovelady of Sidney, president; Dr. Kenneth Murchison of Sidney, vice president; Dr. A. E. Wanamaker of Hamburg, secretary and treasurer; Dr. Murchison, delegate; and Dr. L. A. Baldwin of Riverton, alternate delegate.

A. E. Wanamaker, M.D., Secretary

Greene County

The regular monthly meeting of the Greene County Medical Society was held in Jefferson, Thursday, March 14. A seven o'clock dinner was served to members, their wives and visiting doctors from surrounding counties. John T. Strawn, M.D., of Des Moines, spoke on Treatment of Gastric Hemorrhage.

John R. Black, M.D., Secretary

Hardin County

Carl F. Jordan, M.D., of the State Department of Health, Des Moines, was guest speaker for the Hardin County Medical Society, at a meeting held Tuesday, March 26, at the Winchester Hotel in Eldora. Dr. Jordan spoke on Diagnosis and Treatment of Pneumonia.

W. E. Marsh, M.D., Secretary

Harrison County

Members of the Harrison County Medical Society met in Logan, Tuesday, March 19, at which time Carl F. Jordan, M.D., of the State Department of Health,

Des Moines, showed three reels of motion pictures on the treatment of pneumonia.

Humboldt County

The following officers were elected to serve the Humboldt County Medical Society, at a meeting held Tuesday, March 12: Dr. J. K. Coddington of Humboldt, president; Dr. Ivan T. Schultz of Humboldt, secretary and treasurer; Dr. Cloyce A. Newman of Bode, delegate; and Dr. R. W. Beardsley of Livermore, alternate delegate.

I. T. Schultz, M.D., Secretary

Jackson County

The Jackson County Medical Society held a regular scientific session in Maquoketa, Thursday, March 21, with the following program: Sulfapyridine Treatment for Pneumonia, W. M. Fowler, M.D., of Iowa City; and Heart Failure, Horace M. Korn, M.D., also of Iowa City.

Johnson County

Tracy B. Mallory, M.D., pathologist of Boston, Massachusetts, was the guest speaker for the Johnson County Medical Society, at a meeting held Friday, March 8, at the Hotel Jefferson in Iowa City. Dr. Mallory spoke on Bronchial Asthma.

Linn County

The next meeting of the Linn County Medical Society will be held Thursday, April 25, in Cedar Rapids. Cecil S. O'Brien, M.D., of Iowa City, will address the group, and members of the profession are invited to attend.

T. F. Hersch, M.D.,
Chairman Program Committee

Madison County

The Madison County Medical Society held its regular monthly meeting Monday, March 18. After a sixty-three dinner, C. J. Peisen, M.D., of Des Moines, gave an interesting talk on Gastroscopy. Auxiliary members and Mrs. Peisen were guests at the dinner.

Evelyn M. Olson, M.D., Secretary

Mahaska County

Newly elected officers of the Mahaska County Medical Society include Dr. E. Marsh Williams, president; Dr. G. W. Bennett, secretary; and Dr. G. H. Clark, treasurer. All officers are of Oskaloosa.

Marshall County

Kellogg Speed, M.D., of Chicago, Illinois, addressed the regular monthly meeting of the Marshall County Medical Society, Tuesday, March 5, on Unhappy Results in the Treatment of Fractures.

Poweshiek County

The Poweshiek County Medical Society, in cooperation with the Speakers Bureau of the Iowa State Medical Society, arranged a postgraduate course in gastro-enterology. Beginning March 5, the four lectures were presented on successive Tuesdays at the Hotel Monroe in Grinnell during the month of March by Des Moines physicians. In addition to Poweshiek County members, doctors from Iowa, Jasper, Marshall and Tama counties registered for the course. Subjects and speakers were as follows: X-Ray Diagnosis of Gastro-intestinal Lesions, Thomas A. Burcham, M.D.; Diseases of the Stomach, John T. Strawn, M.D.; Diseases of the Colon, Clement A. Sones, M.D.; and Pathology of Gastro-intestinal Lesions, James E. Kahler, M.D.

C. E. Harris, M.D., Secretary

Scott County

The regular dinner meeting of the Scott County Medical Society was held Tuesday, March 5, at the Lend-a-Hand Club in Davenport. Louis J. Hirschman, M.D., professor of proctology, Wayne University College of Medicine, Detroit, Michigan, spoke on The Diagnosis and Treatment of Common Anorectal Diseases, from the standpoint of the general practitioner.

Sioux County

A dinner meeting of the Sioux County Medical Society was held in Alton, Monday, March 18, at which time William E. Cody, M.D., of Sioux City, gave an illustrated talk on Infections of the Hand. Wayland K. Hicks, M.D., also of Sioux City, showed colored motion pictures of his recent fishing trip to the western coast of Mexico.

C. B. Murphy, M.D., Secretary

Webster County

Dr. W. W. Bowen of Fort Dodge, will be the honored guest of the Webster County Medical Society at a meeting to be held Tuesday, April 16, in Fort Dodge. Dr. Bowen is retiring from active practice after forty-five years of service in Fort Dodge, and the county society is planning a smoker and afternoon program for Dr. Bowen's friends in the community and throughout the state.

S. B. Chase, M.D.

Winneshiek County

The Winneshiek County Medical Society held its March meeting at the home of Dr. J. W. Holtey in Ossian, after a dinner served at the Ossian Hotel. It

was voted to hold at least one round table refresher course, arranged by the Speakers Bureau, in the county during the year.

L. J. Hospodarsky, M.D., Secretary

Woodbury County

William Jepson, M.D., who has practiced medicine in Sioux City for fifty-four years, addressed members of the Woodbury County Medical Society, Tuesday, March 12, on Reminiscing—Medicine in Sioux City, Past, Present and Future.

A joint meeting of the Woodbury County Medical Society and the Sioux City Dental Society was held at the Mayfair Hotel Thursday, March 21, following a six-thirty dinner. William Scherer, M.D., from the department of surgery, University of Nebraska, Omaha, spoke on Oral Surgery and Immediate Care, with Especial Reference to Fractures of the Jaw.

A. Q. Johnson, M.D., Secretary

PERSONAL MENTION

Dr. H. P. Smith, professor of pathology, State University of Iowa, College of Medicine, was elected secretary and treasurer of the American Society for Experimental Pathology, at the annual meeting held in New Orleans, March 13 to 16, 1940.

Dr. James P. Hahn, after eight years of practice in Sioux City, and two years in Pierson, has left Iowa, and located in Hartington, Nebraska, where he will be in charge of the Hartington Hospital.

Dr. Charles F. Obermann, superintendent of the Cherokee State Hospital, addressed the Ida Grove Junior Women's Club. Tuesday, March 12, on "The Mentally Ill and Their Care and Training."

Dr. Earl B. Ritchie, specialist in diseases of the skin, will enter the practice of medicine in Davenport, where he will be associated with Dr. N. C. Barwasser, with offices in the Davenport Bank Building. Dr. Ritchie was graduated in 1924 from the University of Michigan Medical School, Ann Arbor, and comes directly from San Antonio, Texas, where he has been practicing.

Dr. Frederick J. Swift, commandant at the Soldiers' Home in Marshalltown for the past four years, is giving up that position to return to private practice. He plans to open offices in Maquoketa, where he practiced for many years, specializing in diseases of the eye, ear, nose and throat.

Dr. James H. Bruce of Fort Dodge spoke for the Humboldt Rotary Club, Tuesday, March 12, at a noon meeting, on "Socialized Medicine."

Dr. Garfield A. Reutter, who has practiced in Blanchard for the past twenty-five years, is leaving that locality and moving to Fort Snelling, Minnesota.

Dr. William R. Day is returning to Iowa after an absence from the state of twenty-five years. He is coming from Cheyenne, Wyoming, to Fairfield, where he has already opened an office.

Dr. Leonard P. Ristine has been reappointed superintendent of the Mount Pleasant Hospital for a four-year term beginning April 1, and Dr. Charles F. Obermann was renamed superintendent of the Cherokee State Hospital for a similar term, according to a recent announcement by the Iowa State Board of Control.

Dr. James E. Dyson of Des Moines was the speaker of the evening for the regular monthly meeting of the Parent-Teacher Association of Madrid, held Tuesday, March 5, in the High School Auditorium. Dr. Dyson's subject was "Youth and Health."

MARRIAGES

Miss Adelaide Vaala, daughter of Mr. and Mrs. Andrew Vaala of Lawler, was married to Dr. Vernon W. Petersen of Iowa City, Saturday, March 16, at St. Paul's Lutheran Church in Iowa City. The bride was graduated from the University of Iowa School of Nursing in 1939, and is now connected with the orthopedic department of the university. Dr. Petersen was graduated from the State University of Iowa, College of Medicine, in 1933, and is now on the surgical staff of the university hospitals.

The marriage of Miss Elaine Andersen, daughter of Mr. and Mrs. Walter Andersen of Audubon, to Dr. C. C. Bowie of Carroll, took place Wednesday, March 6, in Carroll. They will live in Carroll where Dr. Bowie has been engaged in the practice of medicine for several years.

Miss Janet Coffin of Des Moines and Dr. Howard G. Ellis, also of Des Moines, were married Sunday, March 24, at the Central Presbyterian Church in Des Moines. Dr. Ellis was graduated in 1936 from the University of Kansas, School of Medicine, Lawrence, Kansas, and the young couple will live in Des Moines, where he has been practicing for the past two years.

DEATH NOTICES

Braunwarth, Emma L., of Muscatine, aged eighty-one, died March 1 of pneumonia. She was graduated in 1881 from the State University of Iowa, College of Medicine, Iowa City, and at the time of her death was a life member of the Muscatine County and Iowa State Medical Societies.

Peppers, Austin W., of Birmingham, aged sixty-one, died March 8 after an eight months' illness. He was graduated in 1902 from Barnes Medical College, St. Louis, and had long been a member of the Van Buren County Medical Society.

Rohlf, Edward Louis, of Waterloo, aged seventy-one, died March 6. He had been ill since June, 1938. He was graduated in 1900 from the University of Nebraska, College of Medicine, Omaha, and at the time of his death was a life member of the Black Hawk County and Iowa State Medical Societies.

Taylor, John Lealand, of Montezuma, aged sixty-six, died March 14 from injuries received in an automobile accident. He was graduated in 1902 from the State University of Iowa, College of Medicine, Iowa City, and at the time of his death was a member of the Poweshiek County Medical Society.

AMERICAN COLLEGE OF PHYSICIANS SPONSORS POSTGRADUATE COURSE

One of the series of postgraduate courses sponsored by the American College of Physicians was held at the University Hospitals in Iowa City, March 25 to 30, under the direction of Dr. Fred M. Smith, professor and head of the department of internal medicine. The course covered various aspects of cardiac and vascular diseases. Ward rounds were conducted daily by Dr. Smith and Dr. Horace M. Korn, professor of internal medicine. The following subjects were discussed.

Peripheral Vascular Disease—Dr. E. V. Allen, The Mayo Foundation, Rochester, Minnesota.

Rheumatic Heart Disease—Dr. Hugh McColloch, associate professor of pediatrics, Washington University, St. Louis, Missouri.

Hypertension and Syphilitic Heart Disease—Dr. Roy W. Scott, professor of clinical medicine, Western Reserve University, Cleveland, Ohio.

Coronary Artery Disease and Treatment of Cardiac Failure—Dr. Fred M. Smith, Iowa City.

Chronic Valvular Heart Disease and Cardiac Irregularities—Dr. Horace M. Korn, Iowa City.

Subacute Bacterial Endocarditis—Dr. Robert C. Hardin, resident in medicine, University of Iowa, Iowa City.

The Heart in Thyrotoxicosis—Dr. James A. Greene, associate professor of medicine, University of Iowa, Iowa City.

Drug Action in Treatment of Cardiac Failure—Dr. E. G. Gross, professor of pharmacology, University of Iowa, Iowa City.

In addition, clinical pathologic conferences were conducted by Dr. H. P. Smith, professor of pathology, State University of Iowa, College of Medicine. Registration was limited to twenty-seven physicians. Those registered from the state of Iowa included Drs. R. N. Larimer of Sioux City, F. W. Mulsow of Cedar Rapids and George B. Crow of Burlington.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

Early Medical Education of Keokuk

ADDITIONAL HISTORICAL DATA

FERDINAND J. SMITH, M.D., Milford, Iowa

Some years ago the State Medical Librarian sent to the author several recently discovered copies of the *Western Medical and Chirurgical Journals*. They were dated July and September, 1853. Both of the journals contained interesting information which, if known, might have been used to advantage in my monograph on the Transition from Franklin Medical School to the Keokuk College of Medicine of the State University of Iowa, which was published some years ago in the *JOURNAL OF THE IOWA STATE MEDICAL SOCIETY*. Due to the appearance in the October, 1939, *JOURNAL* of Dr. Bierring's interesting article, which contained comments on and quotations from the 1855-56 "Annual Announcement of the Iowa Medical College, Keokuk, Iowa," I was reminded of the material copied from the above mentioned journals. I also realized that this Iowa Medical College announcement fitted in very well with the material which had been gleaned.

Quoting from the July, 1853, number, on page 356 we find the following statement made by Dr. John F. Sanford.

TO THE PROFESSION

"A preparatory Medical School for instruction in various branches of the medical sciences, will be opened in the city of Keokuk, during the ensuing autumn. The editor of this *JOURNAL*, influenced by the desire of his own pupils and other professional friends, will unite his services in this enterprise. Similar institutions are springing up all over the country, and it is hoped the time is not far distant when they will supercede private pupilage altogether. The arrangements will be fully announced in the next *JOURNAL*."

Before commenting on the above, may I call your attention to several communications in the September number of the aforementioned journal. On page 397 of this issue there was the resignation of Dr. Sanford from his connection with the College of Physicians and Surgeons of the Iowa Medical College, a department of the State University. The resignation follows:

"The editor of the *JOURNAL* resigned the Chair of Surgery in the College of Physicians and Surgeons, of the Iowa University last February. This notice was inadvertently omitted in the last number of the *JOURNAL*, and it now becomes necessary, from the fact that many persons address him letters containing inquiries concerning the school. All letters of this kind should be addressed to the Dean."

Dr. Sanford added the following statement: "It will be seen that we continue our surgical lectures under a new arrangement." He stated that an organization had been perfected under the name of the Iowa Medical School for preparatory instruction in medicine and surgery. He further explained that "in accordance with the sanction of medical societies and medical men throughout the country, the undersigned have associated together in an organization for the purpose of private medical teaching, and to afford students and practitioners who may not be immediately prepared to enter a college, a thorough course of demonstrations in the practical department of the Medical Sciences."

Continuing, Dr. Sanford said, "It is conceded that no plan which has been proposed for practical improvement and rapid progress in the study of medicine, is so efficient as that kind of familiar and colloquial instruction and illustration which is pursued in these private schools; where the student, or practitioner, free from the restraints of collegiate discipline, may leisurely and maturely give his mind to the investigation of practical subjects connected with every day duty of private practice. * * * The courses of study are to begin the first Monday in October. The courses will continue over a period of six weeks, early enough, so that those who desire an opportunity to enter any regular medical college for the regular winter course may do so. The annual course will hereafter be prolonged."

The faculty consisted of the following members: Dr. John F. Sanford, instructions and lec-

tures in anatomy and surgery; Dr. R. H. Wyman, pathology, practice of medicine, and obstetrics; and Dr. W. H. Farner, chemistry, materia medica and therapeutics. Again quoting Dr. Sanford, "The dissections will be of a practical character, and such abundance of material supplied, that every student may acquire proficiency and confidence in the use of the knife." In the two branches, chemistry and materia medica, "The instructor will give especial attention to toxicologic experiments, and chemical analysis, and will, during the courses, present to the class unlabelled poisons for analysis, and supply them with the necessary equipment so that they may succeed in detecting the various poisons. A few lessons of this kind, where the student is thrown upon his own resources, are more valuable than months of mere oral instruction. * * * A large clinic, embracing

cases at home and abroad, will illustrate the courses of the instructor in pathology and practice of medicine. The fees for the course, including material for dissection, will be thirty dollars. A skillful demonstrator of anatomy has been engaged. Address all letters of inquiry to Dr. Wm. H. Farner, Secretary."

The evident conclusion, after perusing these facts, cannot but lead to the belief that the Iowa Medical School of October and November, 1853, was the beginning of the institution mentioned in the 1855-56 announcement.

These statements and quotations are being placed on record conjointly with Dr. W. L. Biering's article. It seems reasonable that either early issues of the *Iowa Medical Journal* or some of the contemporary newspapers should be able to yield other desirable facts.

Minutes of Meetings of State Society Officers and Committees

Meeting of the Board of Trustees Sunday, February 4, 1940

The Board of Trustees met in the central office Sunday morning, February 4, at nine-thirty, with all three trustees, the secretary and treasurer present. Minutes were read and approved; bills were authorized; the 1940 budget was set; and the treasurer was authorized to purchase \$3,000.00 worth of government bonds when he was able to do so to advantage. Meeting adjourned at eleven-thirty.

Meeting of the Executive Cancer Committee Thursday, February 29, 1940

Two members of the Executive Cancer Committee, Dr. M. C. Hennessy and Dr. A. W. Erskine, met in Iowa City, Thursday, February 29, 1940, with Doctors H. Dabney Kerr, H. P. Smith and Frank R. Peterson of the University Hospitals Cancer Committee, Mr. R. E. Neff, administrator, and Dr. E. M. MacEwen, Dean of the College of Medicine. Dr. Hennessy explained that the Executive Cancer Committee was attempting to plan for a state program of cancer control in which the teaching needs of the University would be safeguarded, indigent cancer patients would be given the necessary care, and the medical profession would be educated in the diagnosis and treatment of cancer. The discussion covered the need for a good selection of cases at the University, and the setting up of standards for certification of cancer units. Three methods were suggested for selecting proper material for the University, but the one favored was that quotas based on teaching needs should be set up, and the directors of the various units should be kept informed of the changing status of such needs.

Meeting of the Executive Cancer Committee Sunday, March 10, 1940

The Executive Cancer Committee of the Iowa State Medical Society met in Des Moines Sunday, March 10, 1940, at 10:00 a. m. The following doctors attended the meeting by invitation: E. D. Plass and H. D. Kerr of the College of Medicine, Carl F. Jordan of the State Department of Health, F. A. Hennessy, President, F. P. McNamara, President-elect, and Fred Moore of the Legislative Committee. Members of the Committee in attendance were Doctors M. C. Hennessy, D. F. Ward, A. W. Erskine and H. W. Morgan.

Dr. Erskine gave a report of the Iowa City meeting and a general discussion of the program followed. The general plan was that cancer units should be set up in a few counties and the work carried on under the regular medical relief program to gain figures and experience. It was felt that eventually a state appropriation would be necessary to solve the problem of cancer patients at the University Hospitals, but it was voted that the Committee should not recommend the immediate passage of a law for a special appropriation for diagnostic and treatment facilities for cancer patients. The Committee also voted to have the Council ask Dr. Biering to create a Division of Cancer Control and to cooperate with the Executive Cancer Committee in establishing standards for the certification of cancer units. A third recommendation of the Committee was that in whatever method of providing diagnostic and treatment facilities for indigent cancer cases be finally adopted, the teaching needs of the University should be safeguarded through setting up a quota based on teaching needs, and filling this

quota by cooperation with the directors of the various cancer units. Meeting adjourned at eleven o'clock.

Meeting of the Council
Sunday, March 10, 1940

The Council of the Iowa State Medical Society met in Des Moines Sunday, March 10, 1940, with the following persons present: Doctors L. L. Carr of Clermont, C. H. Cretzmeyer of Algona, F. P. Winkler of Sibley, E. B. Bush of Ames, C. W. Ellyson of Waterloo, H. A. Householder of Winthrop, C. A. Boice of Washington, M. C. Hennessy of Council Bluffs, A. W. Erskine of Cedar Rapids, H. W. Morgan of Mason City, D. F. Ward and F. P. McNamara of Dubuque, F. A. Hennessy of Calmar, Fred Moore, Robert L. Parker and Carl F. Jordan of Des Moines, and E. D. Plass and H. D. Kerr of Iowa City.

The meeting was called to order by the chairman and the minutes of the previous meeting were approved. Dr. Fred Moore gave a report of the hospital insurance group, Hospital Service, Inc., of Iowa; Dr. Hennessy gave the report and recommendations of the Executive Cancer Committee and they were accepted and approved by the Council; and Dr. Ellyson gave the report of the committee appointed to investigate the problem of tuberculosis in Iowa. The Council accepted and approved the following report: "We recommend that the chairman of the Council, with the approval of the Council, name a committee to be known as the State Society Committee on Tuberculosis. This Committee shall consist of five members. The duties of this committee shall be largely those of a professional advisory committee on tuberculosis to act in cooperation with the State Department of Health and the Iowa Tuberculosis Association, and to assist in coordinating the activities of these organizations with the Iowa State Medical Society. The committee shall further cooperate with the Speakers Bureau to arrange programs before county medical societies concerning tuberculosis, its incidence and means of control. It shall further urge county medical societies to cooperate with the Christmas Seal committees in the raising of funds and shall advise concerning the expenditure of those funds within the county in case-finding or treatment programs. It shall further, if and when advisable, urge the appointment of committees on tuberculosis in county medical societies."

Meeting adjourned at one o'clock.

**Meeting of the Committee on Child Health
and Protection**

Sunday, March 17, 1940

The Committee on Child Health and Protection of the Iowa State Medical Society met in the central office Sunday morning, March 17, at 11:00 a. m. Members of the Committee who were present were Doctors H. E. Farnsworth of Storm Lake, R. H. McBride of Sioux City, Lee F. Hill of Des Moines,

E. D. Plass of Iowa City, H. A. Weis of Davenport, and C. P. Phillips of Muscatine. Also invited to attend the meeting were Mrs. S. E. Lincoln of Des Moines and Mrs. A. F. Kobb of Davenport, representing the Iowa Congress of Parents and Teachers, and Dr. J. M. Hayek of the State Department of Health.

The Summer Round-Ups of the Parent-Teacher Association were discussed, with Dr. Hill explaining the interest of the American Academy of Pediatrics in the problem. The Academy set three objectives: first, to improve the quality of the examinations by devising ways and means of improving the whole program of periodic health examinations of children; second, to set some minimum standards for health examinations; and third, to recommend that all examinations should be done in the office of the family physician. Mrs. Lincoln and Mrs. Kobb agreed with these objectives and said the Parent-Teacher Association would do its part in working them out. It was decided the Committee should write all county society secretaries regarding the conduct of the Summer Round-Up examinations, with recommendations as to correct procedure.

The Committee also discussed the preparation of more talks for the 4-H Clubs, intramural post-graduate education at Iowa City in care of the newborn and premature infant, contact infections and the juvenile court system. It also decided to conduct another smallpox vaccination program in November, 1940, stressing the need for immunization against diphtheria as well as vaccination against smallpox.

Meeting adjourned at 1:45 p. m.

INVITATION TO PHYSICIANS

The Iowa Maternal Health League extends a cordial invitation to all physicians attending the annual meeting of the Iowa State Medical Society to visit its clinics Wednesday or Thursday noon, May 1 or 2. The clinics are held on the first floor of the Iowa Methodist Hospital. The physician in charge will be glad to explain the clinic procedure and answer any questions.

SPEAKERS BUREAU
RADIO SCHEDULE

WSUI—Tuesdays at 4:00 p. m.

WOI—Wednesdays at 3:45 p. m.

April 16-17 The Road to Health

Woman's Auxiliary Health Essay Contest Winner

April 23-24 Auto Accidents

Adrian R. Anneberg, M.D.

April 30-May 1 Old Age

Edward W. Anderson, M.D.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

TEXTBOOK OF NERVOUS DISEASES—By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.

OBSTETRICAL PRACTICE—By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.

THE NEWER KNOWLEDGE OF NUTRITION—By E. V. McCollum, Ph.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University. Fifth edition, entirely rewritten, illustrated. The Macmillan Company, New York, 1939. Price, \$4.50.

SYNOPSIS OF PEDIATRICS—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.

POPULATION RACE AND EUGENICS—By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by author, 1939. Price, \$3.00.

TUMORS OF THE HANDS AND FEET—By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.

CANCER OF THE LARYNX—By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.

SCLEROSING THERAPY—Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.

THE NEW INTERNATIONAL CLINICS, VOLUME IV, NEW SERIES TWO. Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.

THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART—By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.

THE 1939 YEAR BOOK OF GENERAL SURGERY—Edited by Everts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.

LOVE PROBLEMS OF ADOLESCENCE—By Oliver M. Butterfield, Ph.D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

BOOK REVIEWS

TUMORS OF THE HANDS AND FEET

By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.

This volume constitutes a monographic symposium on neoplasms of the hands and feet by outstanding American contributors. Well systematized, illustrated and clinical in approach it is easily recommended to those desiring insight into neoplastic lesions of the extremities, especially of the hands. The management of such tumors is well presented and exemplifies current opinion based on experience derived from some of the leading clinics in this country.

H. H. S.

tion of the educated and physically fit classes by government employment. Rational marriage should necessitate a certificate of physical fitness from a physician, and a similar certificate from a qualified eugenicist. According to the author "love has been considerably overrated."

This volume is obviously written by a sincere student of eugenics who presents a serious problem. However, the solutions offered are for the most part impractical.

D. K.

POPULATION, RACE AND EUGENICS

By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by the author, 1939. Price, \$3.00.

This little book of 200 pages is devoted to a study of the agencies under social control which may improve or impair the racial quality of future generations.

Negative eugenics is defined by the author as hereditary defects; positive eugenics is the failure in recent years of the educated, the intellectually endowed and the socially efficient, to leave sufficient descendants to replace themselves. As a constructive recommendation the author suggests strict laws to control the propagation of defective individuals, and to encourage marriage and propaga-

THE PATIENT AS A PERSON

By G. Canby Robinson, M.D., LL.D., lecturer in medicine, Johns Hopkins University, Baltimore. The Commonwealth Fund, 41 East 57th Street, New York, 1939. Price, \$3.00.

This book is, as its subtitle reads, "A study of the social aspect of illness." It is clearly written and easily understood, not only by those in the medical profession, but by the layman as well.

In his foreword Dr. Robinson explains his interest in the social problems which was aroused when, as an interne, he first became responsible for the welfare of his patients. In the first chapter he shows that while present day methods of measurement and specialization are excellent and necessary, they tend to make the doctor less conscious of his patient as a personality. Dr. Robinson makes a fine distinction between illness and disease, and his special interest is illness. He conducted his studies at Johns Hopkins Hospital for more than a year, with the cooperation of the entire staff, visiting patients

after clinical diagnoses had been made. Of the 174 patients seen by the author, 80 per cent revealed some type of adverse social condition. These patients were suffering from cardiovascular disease, tuberculosis, pneumonia and other respiratory diseases, gastro-intestinal diseases, syphilis, epilepsy and psychoneurosis. Dr. Robinson discusses each general disease classification under the following four points:

1. General discussion of the characteristics, diagnosis and general treatment of the patient, showing the necessity of studying the patient as a whole.
2. Case history of each patient visited, illustrating social and economic status, significance of friction at home, and poverty.
3. Comment on each case immediately following its history.
4. Conclusions as a whole on that particular type of illness.

The author concludes that "too little consideration is given the mind in caring for the body." Such study seems to him of paramount importance in all teaching hospitals, so that the young doctor may be trained correctly. He makes a plea for the general physician, who combines the methods of the social worker, interne, hygienist and psychiatrist, in caring for patients through struggles with social adversity and social incapacity. F. A. H.

A TEXTBOOK OF CLINICAL NEUROLOGY

By Israel S. Wechsler, M.D., professor of clinical neurology, Columbia University, New York. Fourth edition, revised. W. B. Saunders Company; Philadelphia, 1939. Price, \$7.00.

This is a book which may be characterized as indispensable for anyone working in the field of clinical neurology. For the student and general practitioner, it gives a digest of the essential diagnostic features in a concise and readable manner. At the end of each chapter is a generous reference of the material presented. The author has brought up to date the innumerable advances made in neurology in the past few years. The last chapter is devoted to the neuroses, presented in a style which causes little confusion. This is a comprehensive useful book which can be highly recommended. W. E. A.

FROM HEAD TO FOOT

By Armitage Whitman, M.D., associate professor of orthopedics, Columbia University. Farrar and Rinehart, New York, 1939. Price, \$2.50.

The author of this book, himself an eminent orthopedic surgeon, is the son of the distinguished Dr. Royal Whitman, and well qualified to present a practical discussion of the nature and various phases of orthopedic surgery. Separate chapters are devoted to posture, the foot, bowlegs, and knock-knees, curvature of the spine, infantile paralysis, spastic paralysis, fractures, osteomyelitis, joint injuries and

low back pain. The economic, physiologic and psychologic factors concerned with the influences of a handicap, physiotherapy, social service, workmen's compensation, veterans and operations are discussed frankly and sympathetically in the light of the author's own experiences.

Written in an informal and conversational style, a clear exposition is furnished the reader in simple, non-technical language. This volume is well recommended for the layman interested in medical subjects. E. M. G.

ACCEPTED FOODS AND THEIR NUTRITIONAL SIGNIFICANCE

A publication of the Council on Foods of the American Medical Association. Published by the American Medical Association, Chicago, 1939. Price, \$2.00.

This book contains descriptions and detailed information regarding the chemical composition of more than 3,800 accepted products, together with a discussion of the nutritional significance of each class of foods. It provides also the Council's opinion on many topics in nutrition, dietetics and the proper advertising of foods.

This book will be a welcome reference book for all persons interested in securing authoritative information about foods, especially the processed and fabricated foods which are widely advertised. The accepted products are classified in various categories; fats and oils; fruit juices; canned and dried fruit products; grain products; preparations used in the feeding of infants; meats, fish and sea foods; milk and milk products other than butter; foods for special dietetic purposes; sugars and syrups; vegetables and mushrooms; and unclassified and miscellaneous foods, including gelatin, iodized salt, coffee, tea, chocolate, cocoa, chocolate flavored beverage bases, flavoring extracts, dessert products, baking powder, cream of tartar, baking soda and cottonseed flour. There is a suitable subject index as well as an index of all the manufacturers and distributors of food products which have been accepted by the Council on Foods. D. K.

LOVE PROBLEMS OF ADOLESCENCE

By Oliver M. Butterfield, Ph. D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

In this volume the author records the results of a study of over one thousand adolescents, in which he endeavored, by questionnaire, to learn the love problems of the adolescents and to secure some measure of their frequency. The chief value of the work is that it presents the questions which perplex the adolescent. Problems of heterosexual relationship and questions of love and marriage relation are the things which the high school and college age groups wish to know about. The author recommends premarital and adult education to reduce the perplexities in the next generation. D. K.

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A HISTORY OF ENGLISH MEDICINE FROM 1460 TO 1860

C. B. LUGINBUHL, M.D., Des Moines

We of the medical profession are inclined to recognize only two medical eras as great; the Golden Age of Hippocrates, because it is hal- lowed by time, and the past four score years of scientific miracles, in which we feel a sort of pro- prietary interest. It is true that the Hippocratic writings reveal a remarkable knowledge of medi- cine when we recall that they were based solely upon clinical observation. It is also true that the development of the microscope; the discovery of cellular pathology and of pathogenic bacteria; the evolution of surgery made possible by these dis- coveries and that of anesthesia; the discovery and development of the roentgen ray and many lesser mechanical aids made for remarkable medical progress in the past two generations. However, having given credit where credit is due, it is a mistake to assume that no other periods played a part in the advance of medical science. Before the advent of the printing press, the records of scientific advance are incomplete. Any scientific work, however outstanding, was necessarily lim- ited to a few exemplars. Subject as these were to destruction by fire, pillage, neglect, and even time itself, many works were undoubtedly lost. Even the medieval world was not blessed, or shall I say cursed, with the mushroom growth of pub- lications we take for granted. Moreover, travel between countries and even between cities in the same country was slow and often indefinitely in- terrupted by ever recurring wars. Progress was accordingly hampered, limited as it was to one country or even to one university for long periods of time. Even in the post-renaissance period, scientific progress was spotted. Now this country, now that, played a leading part, and within a given country, one medical center, then another was preëminent. An attempt to evaluate the com- parative part played by various countries in the

centuries preceding what we term the period of modern medicine would be long and tiring; so I have disregarded international medical progress and shall attempt to give a bird's eye view of Eng- lish physicians from Linacre to Lister. This pe- riod includes so many noteworthy men that I have been forced to choose only certain outstanding men, and my choice may be open to criticism. I have drawn freely from the sources here listed, and casually from many others. Some of these authors incline to endow all these early medicos with a halo, while others dilate upon their vices as well as their virtues. The latter I have found more entertaining, and I trust that I may be pardoned if a bit of professional gossip now and then slips in.

Thomas Linacre was born in 1460, some fifteen years after Guttenberg's introduction of the print- ing press, one of several fortunate circumstances which contributed to his claim to fame. His fam- ily must have been affluent, for after attending Oxford, he went to Italy, then preëminent in medicine, to continue his studies. In Florence, he became a protégé of Lorenzo de Medici, had ac- cess to his famous library, studied with his chil- dren's preceptor, and took up the study of Greek. From Florence, he went to Rome to study medi- cine, devoting his time particularly to the study of Aristotle. He graduated in medicine at Padua, and on his return to England received the degree of M.D. at Oxford. There he first lectured on physic, then taught Greek. The study of that lan- guage was just then becoming popular with Eng- lish scholars, and Linacre's knowledge of that language seems to have been an important step- ping stone in his rise to fame. He is said to have been the first Englishman to have read Aristotle and Galen fluently in the original Greek, and if the actual medical knowledge they contain can scarcely have profited Linacre's patients, the schol- arship Linacre thus displayed brought him re- nown. He was called to the court of Henry VII, where he served both as physician and tutor to Prince Arthur, and reputedly also to Princess

Catherine. Under Henry VIII, he continued to serve as court physician, and the renown and patients which his court affiliations brought gave him both wealth and influence. Thus far, Linacre appears as the fifteenth century edition of a suc-



THOMAS LINACRE

cessful physician, his fame based on social and financial rather than on scientific achievements. He did, however, contribute translations of various early classics, far superior to any which had previously been available, and the printing press gave them a previously unknown circulation. Linacre left no original contribution to medicine. His name is immortal because he found the practice of medicine in England in the hands of illiterate monks and empirics and through his influence and wealth, he made it an honored profession. The licensing power had been vested in the bishops, who at best had no criteria of the applicants' ability; their judgments were for the most part based on favoritism and greed. Through Linacre's influence with Cardinal Wolsey, Henry VII in 1518 was induced to issue letters patent to a corporate body of physicians in London, the Royal College of Physicians. To it was granted the sole right of admitting persons to practice within the city of London and for a distance of seven miles about it. Under the guidance of Linacre, who served as its president during the remaining seven years of his life, the first requirements for licensure were established. During his lifetime he had established two lectureships on physic in Oxford University and one in Cambridge. On his death

he willed his home to the Royal College of Physicians that they might continue to assemble there.

John Key, or Caius, born in 1510, repeated in a general way the pattern of Linacre's life. He studied abroad, traveling through much of Italy, Germany and France, and after a brief bout with country practice, was appointed physician to Edward VI. His translations were inferior to Linacre's, but he published some original works. Most interesting of these was a small book on an unidentified pestilence, written in English. He explains his unprecedented use of the vernacular on the grounds that, since the disease attacks only the English, it is important that knowledge of it should be readily available. He is thus a remote ancestor of our modern, pseudoscientific columnist. Again like Linacre, Caius served as president



JOHN CAIUS

and as patron of the Royal College of Physicians. Through the favor of Queen Mary, he obtained a license to advance Gonville Hall into a College, the first medical college in England, and endowed it with a considerable sum. Later he accepted the Mastership of the College, and spent a considerable sum enlarging it. This enduring monument was the retreat of his old age.

Harvey, born in 1578, attended this College, traveled in France and Germany, and went to Padua, at that time the world's medical center. He took a lively interest in the lectures of Fabricius; here he learned of the existence of valves in all veins, and was inspired to seek the reason for them. He took his degree in medicine at Padua

after four years, and on his return to England was graduated from Cambridge. Going to London, he applied for admittance to the Royal College of Physicians in 1604, and three years later was made a fellow. In 1615, he was appointed reader of the surgical and anatomical lectures at the College, and it was in research incident to these lectures that he first voiced his theory of the circulation of the blood, probably in 1616. Years of research followed before his "*De Motu Cordis*" was published at Frankfort in 1628. Frankfort is supposed to have been chosen as the place of publication because its famous fairs insured a rapid circulation of its books throughout a major part of Europe. The study of embryology engrossed him for years. He had often to attend

the measure of the man; long before him, others must have suspected the circulation of the blood; wounds were a commonplace of early times; Harvey demonstrated it. More, he taught the value of research, the method of substituting facts for fantastic theories.

Harvey was deeply interested in his profession, and in the College of Physicians as a means of furthering the welfare of this profession. For it, he had the Museum of Harvey constructed, a building with a convocation room in the first story, a library and museum in the second, and on his death he endowed it with his paternal estate of fifty-six pounds yearly in perpetuity. This was to be spent in providing an annual banquet for its Fellows, a gratuity for the speaker who was to deliver a Latin Address in commemoration of the benefactors of the College, and a provision for the caretaker of his library and museum. His birthplace, with the lands surrounding it, he bequeathed to Caius College.

Sir Thomas Browne, born in 1605, took the degree of M.A. at Cambridge. He studied physic there for a time, then made an abortive attempt to practice his profession. He studied at Montpellier and Padua, and took his degree in physic at the University of Leiden. Soon after reaching London in 1634, his "*Religio Medici*" was published and aroused much controversy. He practiced in Norwich, where he seems to have enjoyed an excellent reputation, but his name has lived not because of any notable contribution to medicine, but because of his versatile scholarship. He wrote on medicine, religion, natural history, archeology and philology. Unlike his predecessors, he was a benedict, and made no bequests to his profession.

Thomas Sydenham, born in 1624, received the degree of Bachelor of Physic at Oxford in 1648; he remained at Oxford for some years but received his doctor's degree at Cambridge. He, too, studied at Montpellier and then located in Westminster. He rapidly attained professional recognition, and in 1663 was made a member of the College of Physicians. His treatise on clinical medicine, "*Methodus Curandi Febres, etc.*," was first published in 1666; a second edition appeared in 1668 with an added chapter on the great plague which had raged in England, particularly in London in 1665 and 1666. In the first edition, a chapter is devoted to smallpox, which even so great a clinician as Sydenham failed to recognize as contagious. His method of treatment by attempting to lower the patient's temperature by exposure to air and by cooling drinks was in direct opposition to the prevailing method of sweating, and met with violent opposition. Sydenham himself said that it was his nature to think where



WILLIAM HARVEY

his royal master on the hunt, and as pregnant does were often slaughtered, he found material for study at hand. A friend, George Bathurst, is said to have kept a setting hen in his rooms, so that he and Harvey could make observations on the daily growth of the chick. Many of Harvey's valued notes and drawings were destroyed when his chambers were sacked by soldiers during one of the frequent periods of political upheaval. When his second treatise, "*De Generatione Animalium*," was published in 1651, it was at the insistence of a friend. As in the case of his classic, "*De Motu Cordis*," he had devoted more than a quarter of a century to the research on which it was based, but he still considered it a subject for investigation rather than for publication. This is

others read. Certainly he was an acute clinical observer, and in general used good sense in treatment at a time when that characteristic was sadly lacking. His ardent admirers acclaim him as the greatest clinician after Hippocrates, but the methods introduced by Sydenham won a wider recognition when Radcliffe's colorful personality brought them to attention.

John Radcliffe, born in 1650, received his degree of B.A. and of B.M., the latter at Oxford in 1675, and then entered immediately upon practice in Oxford itself. He had been little concerned with the ancient writings, still the backbone of the medical instruction of his day, but he is said to have read with interest the current writings of the day, particularly those by Sydenham. His entry



JOHN RADCLIFFE

into professional life was marked by a feud with the apothecaries, whether instigated by professional jealousy, or by honest disapproval of prescriptions which differed from those of the University's leading practitioner. The feud must have stimulated rather than injured Radcliffe's practice for the apothecaries soon made peace "in order to have his prescriptions in their files." Radcliffe also had professional antagonism to face, a fact which undoubtedly disturbed him little since Radcliffe's responses seem never to have lacked punch. In 1682, he received the degree of M.D. from Oxford, and two years later removed to London, evidently because his success made him eager for a larger field. Within a year he is said to have risen to the head of his profession with a daily

income from fees of more than \$100, an astounding figure when we recall the comparative value of money then and now.

Radcliffe was nothing of a scholar, but he had charm, good judgment and quick wit, although sometimes indulging in coarse wit and ill-timed levity. His good judgment extended to politics, and in the disturbed political situation, he carefully avoided court appointments which a change in the reigning house might have made hazardous. From a financial standpoint this also proved a wise move, for having declined a 200 pound a year court appointment, he averaged more than 900 pounds a year for court consultations, and in 1691 received a single fee of 1,000 pounds for his attendance on the young Duke of Gloucester. Later he fell from grace when "being in his bottles," he refused to answer a summons from Queen Anne, couching his refusal in impudent terms. He continued to attend the king, and his refusal to attend Queen Charlotte in her last illness was due to his own physical disability. His action was misunderstood, and popular indignation ran high. A motion was laid before parliament, of which he was then a member, commanding him to appear in his seat and answer the charge brought against him, but nothing came of it. Radcliffe lived only a few months, dying in October, 1714, according to an early biographer, "a victim to the ingratitude of a thankless world, and the fury of the gout." The world had at least given him a fair share of wealth, for, in contrast to Harvey, he left a large estate, and although during his life he had quarreled incessantly with his colleagues, he left his estate ultimately to medicine. Radcliffe, who had not studied abroad, evidently thought such study worthwhile, for a part of his estate was left in trust to establish in perpetuity two ten-year traveling fellowships for graduates of University College. Hospital fare was evidently then, as now, the subject of criticism for he left a 500 pound annuity to St. Bartholomew's Hospital for the purpose of "mending their diet," and a second annuity of 100 pounds to buy linen. A legacy of 5,000 pounds was left to University College, Oxford, for the enlargement of its building; a sum of 40,000 pounds, as it became available, was to be used to construct a library at Oxford. On its completion, an annuity of 150 pounds was to be allowed the librarian, while an annuity of 100 pounds was to be used for the purchase of books. Trustees were named for the residual estate and they were charged to apply the income for such charitable purposes as they saw fit. The library was completed in 1749; an observatory and public infirmary at Oxford were built from the trust fund. Among other gifts from the same source was a

contribution in 1825 of 2,000 pounds to the construction of the second College of Physicians, and of 2,700 pounds to the Oxford Lunatic Asylum, opened in 1827. In life, Radcliffe was noted for his avariciousness, famed as a sponger; but if he was miserly in lesser things, he was generous in large ones, both in his lifetime and at his death. In truth, his bequests are his chief claim to medical recognition. He was undoubtedly the best known and most popular practitioner of his day, but he left no contribution to medical literature. Dr. Nias relates that Radcliffe once said to Sir Thomas Millington, whom he could not fail to respect, that the whole art of medicine could be put on a sheet of notepaper; to which Millington replied, "As far as you know, it certainly could."

Sir John Floyer affords the opposite picture. He was born in 1649, six years before Harvey died, and Floyer lived until 1734, six years after the birth of John Hunter. He matriculated at Oxford when he was fifteen years of age, received the degree of B.A. in 1668, M.A. in 1671, B.M. in 1674, and M.D. in 1680. Oxford was a great intellectual center during this time, but there had been little advance in the teaching of medicine; it was still limited to the reading of the old classics, and lectures, not demonstrations, in anatomy and chemistry. One wonders on what an active brain like Floyer's fed during these long years. On leaving Oxford, he settled in Lichfield, but we know little of his life save through his writings. In 1698, he published his "Treatise on the Asthma," the latter a vague term applied to any difficulty in breathing. Floyer was remarkably successful in differentiating various conditions to which the term had been loosely applied. In 1707, he published his first book on "The Physician's Pulse-Watch." Having found it unsatisfactory, as he explains, "to try pulses by the minute in Common Watches and Pendulum Clocks when I was among my patients," he had a pulse watch made to run for sixty seconds, and fitted it in a box to make it portable. He studied the pulse in health and disease, under the influence of diet and certain drugs, and concluded that the most useful difference to be observed was "in the numbers of the pulse in a minute; the natural pulse will have from 70 to 75 in a minute in perfect health. The lowest pulse I have counted is 55, the highest 132 . . . but 'tis certain fewer may be counted and more." Floyer seems to have been the first to estimate the blood volume and to compare it with body weight, and his estimate is remarkably near to that obtained by more elaborate modern methods. By an ingenious method of animal experimentation, intended to imitate the pulse and circulation, he concluded that "the pumping

force distends the musculature, by the contractions of which in the intervals the flow is converted from an intermittent to a continuous one." In a second volume on the pulse watch, Floyer extends his inquiry to the nature and rate of respiration as well as pulse, and the effect of diet, exercise, temperature and the like on it.

At this time in England, surgery was in the hands of the Barber Surgeons Company, and was a trade rather than a profession. Sir William Cheselden, born in 1688, was first apprenticed to a surgeon of Leicester, at the age of fifteen years,



WILLIAM CHESELDEN

but soon became a pupil of Mr. Cooper, a well-known anatomist. Shortly thereafter, he became a bound apprentice to Mr. Ferne, surgeon and lithotomist to St. Thomas' Hospital, and at the age of twenty-one years was admitted to "the freedom and liberty of the Barber Surgeons Company." Two years later, he was a lecturer in anatomy, but his popularity brought him the enmity of the Barber Surgeons, and he was charged with dissecting the bodies of executed malefactors. He was let off with a censure from the master, on the agreement that he would change the conflicting hour of his lectures. His appointment as surgeon to St. Thomas' Hospital was opposed, and although he eventually obtained the appointment, his resentment against the Barber Surgeons Company was probably responsible for the active part he took in the movement to separate barbers and surgeons, a successful movement which raised the standards of surgery. Cheselden was particularly

interested in "cutting for stone," and having employed the "high operation" for a few years, he devised the technic for lateral lithotomy. The first twenty-seven operations were performed without a fatality, but of the third group of fifty patients, eight died. His logical explanation is that at first only the most favorable risks were submitted to operation, but as the operation became known, the aged and infirm came clamoring for relief. He is said to have completed the operation in 54 seconds. His published works include an account of couching and of the formation of an artificial pupil for the relief of some types of blindness; an anatomy which went through thirteen editions, the later editions including "a short account of cutting for the stone;" and his greatest work, "Osteographia," with its many beautiful plates, for the most part the work of his pupils, Belchier and Sharp. Cheselden enjoyed a large practice and his fees even from a present day standpoint seem to have been large, that for cutting for the stone was 500 pounds, yet he does not seem to have amassed a fortune.

William Cullen also entered the practice of medicine by way of an apprenticeship. Born in 1712, his parents were unable to give him a university education, and he was apprenticed to a surgeon-apothecary in Glasgow. He served briefly as ship's surgeon, but soon took up practice in his own district, an impoverished one. He removed to Hamilton and there met William Hunter, with whom he shared a common ambition, the desire to secure additional medical training. They entered into a rather original agreement; each winter one would go away to study while the other remained to work for the profit of both. Cullen passed the first winter in Edinburgh. Hunter went to London for the following winter, but since he was offered an assistantship there, the unique partnership was dissolved. Cullen through a fortunate contact secured the position of lecturer on chemistry at the University of Glasgow. To his popularity there he owed an invitation to become professor of chemistry at the University of Edinburgh. He was interested in his students, he developed a large private practice, and yet found time to write a number of books, most of which were published also in France, Germany and Italy. Among these his "Nosology" represented perhaps the greatest innovation for it made practical application of all that was best in his day.

Percival Pott was also apprenticed, but evidently under different conditions, for a fee of 200 guineas, something over a thousand dollars, was paid by his family. His master was busy with lectures on anatomy and surgery, and to Pott fell the task of dissecting preparations for his master's

demonstrations. To this he owed his accurate knowledge of anatomy, and the habit of making observations and drawing practical conclusions from them. Pott was admitted to the freedom of the Barber Surgeons Company at the age of twenty-two years when he had served seven years as an apprentice. His name is known to most of us because of an accident and a misunderstanding. He was thrown from his horse, sustaining a compound fracture of the tibia, not the fracture which bears his name. Through the timely arrival of Nourse, his old preceptor, amputation, the usual treatment of compound fractures, was prevented. He made a good recovery, but during his prolonged convalescence with its resultant inactivity, he turned to writing. He wrote his treatise on hernias during this period. This he considered his best work, perhaps justly, but his "Head Injuries," published later, is considered a medical classic. Another important work was that on "Pott's Disease." Pott continued active until his death at the age of seventy-five years, and summed up well his own character in a remark made a few hours before death: "My lamp is almost extinguished; I hope that it has burned for the benefit of others."

William Hunter's decision to remain in London had been a wise one. By 1728 he had become a busy consultant and had founded a sort of private medical school; of medical schools in the orthodox sense, London possessed none. In that year he was joined by his brother, John, a boy of twenty years, fresh from the family farm near Glasgow. John began to dissect at once, and soon demonstrated such remarkable skill with the knife that he helped prepare specimens for use in the lecture room. When his brother's school closed for the summer, he walked the wards of Chelsea Hospital with Cheselden for two seasons. During the summer of 1751 he attended Pott's lectures at Bart's; but his chief source of information was the constant study of tissues, living and dead. Everywhere he saw problems, and he was possessed of a genius for devising experiments to solve them. In 1759, John developed symptoms of tuberculosis, of which six of the ten members of the Hunter family had already died. England was at war, and William Hunter exerted himself to have John appointed as a staff surgeon. John spent two years in France and Portugal, but was far more interested in biologic problems than in the care of the wounded. When the war closed in 1762, John found his place in the school filled, and he opened a school of his own and entered private practice. William had long been conscious of the debt his younger brother owed him for having taken him in, provided him with food, lodgings and such

money as he had had. John, on the other hand, had had a growing feeling of what he owed himself, and the enmity which had gradually developed between the brothers persisted throughout life.

John Hunter's school provided him with research material rather than with funds. His private practice was not a lucrative one, yet he managed to buy two acres of land just outside London, put up a small house and a number of animal sheds, and make of the place the world's most active center for biologic research. In 1768 he passed the examination and received the diploma



JOHN HUNTER

of the Corporation of Surgeons. In 1754 he had been a student, in 1756 a house surgeon at St. George's Hospital, and in 1768 he at last achieved his ambition and was elected surgeon to that hospital. His private practice and his income had increased steadily, but the expenses for his research were increasingly difficult to meet; he was always in financial difficulties. In 1769 he had inoculated himself with gonorrheal pus to demonstrate that gonorrhea and syphilis were not one, but two diseases. Unfortunately the pus was contaminated with syphilis, and he developed a hard chancre, since called a Hunterian chancre. He experimented with the disease, keeping it in check with mercury. In 1773 he had a severe illness, undoubtedly a coronary accident, and from then on was plagued with anginal attacks; yet he carried on his experimental work and the clinical work that financed it. When he died twenty years

later, there was relatively little to salvage for his family. John Hunter is a dominant figure in medicine, not because of any one of his many achievements, but because he blazed the trail that has meant and still means progress.

Edward Jenner, born in 1749, also entered on the practice of medicine by way of an apprenticeship. His master, Mr. Ludlow, must have recognized the ability of the boy for when he completed his five years' apprenticeship at the age of twenty-one years, Ludlow took him to John Hunter in London, where he spent two years as a house student. Hunter and Jenner had in common an insatiable curiosity and it is said that Hunter desired to keep Jenner with him, but that Jenner preferred the country. As an apprentice, Jenner had heard from a dairy maid that she was not afraid of smallpox because she had had cowpox. The medical men whom he questioned laughed at what they considered a superstition; all of them had had smallpox patients who claimed to have had cowpox. Jenner persisted, and although his country practice took much time, he eventually succeeded in differentiating cowpox from the many other pus infections which dairy maids acquired from contact with infected teats and udders. In 1796 he successfully inoculated a boy eight years of age with the cowpox, and eight weeks later inoculated him with smallpox without his contracting the disease. He published his discovery. In 1798 he removed to London and took a large house, but his ideas were still greeted with ridicule. He had followed Hunter's slogan: "Don't think, but try; be patient, be accurate." His was the burden of knowing that he could save the thousands who were dying annually of smallpox, but Hunter was dead, and without the aid such prestige would have given, it was difficult to make headway in London. Even when preventive inoculation for smallpox was finally accepted, it did not profit Jenner greatly financially, for part of the miracle was that any physician could give the inoculation. Eventually the government made him an award of 10,000 pounds, and then later presented him with 20,000 pounds, but much of this money had already been spent, and a considerable sum was lost in fees and commissions. Jenner returned to carry on his country practice until death claimed him at the age of seventy-two years. A man must have a saving sense of humor or a divine devotion to his profession to find amusing the comparison between Jenner's reward for a life's work, and Joe Louis' for a single fistic bout.

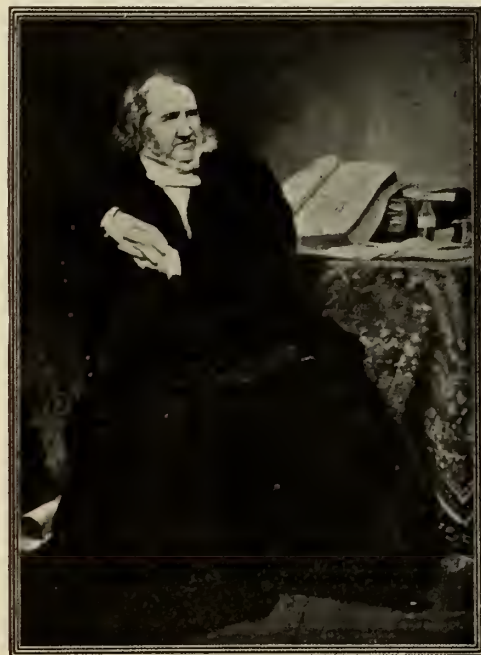
With Richard Bright, born in 1789, we return to the academically trained physician. In 1808 he matriculated in medicine in Edinburgh University;

two years later he took up residence at Guy's Hospital to study under some of the best known men of his day. In 1813, he received his M.D. degree at Edinburgh, and after twice going abroad for some months of study, settled in London. In 1820, he became assistant physician at Guy's Hospital, and after seven years' work in the wards and postmortem room, he published the first volume of his "Reports of Medical Cases Selected with a View of Illustrating the Symptoms and Cure of Diseases by a Reference to Morbid Anatomy." The first twenty-four cases reported are of kidney disease associated with albuminuria and anasarca. In 1836 he gave a summary of his observations on renal disease associated with albuminuria, so complete that the application of the term Bright's disease to nephritis seems an obvious tribute. He was not infallible, for he gave a colleague, forty-five years of age, with severe edema and marked albuminuria not more than two years to live; the man retired to the country and lived there for forty-three years. Two years after the first volume was printed, Bright published a second. This was devoted to diseases of the brain, meninges and spinal cord, and was an equally brilliant piece of work. The first two volumes of Guy's Hospital Reports contain many papers by Bright, and a surprising number of them represent real contributions, containing clinical observations which the physician of today still often overlooks. His "Elements of the Practice of Medicine" was written in collaboration with Addison and published in 1839. It lacks the genius of the earlier works, but is remarkable for its description of appendicitis which the authors recognized as the chief cause of suppuration in the right iliac fossa. Bright gave up his hospital work at the age of fifty-four years, and the remaining years of his life, devoted to private practice and travel, were not noteworthy.

William Stokes was born in 1804, and his studies may be said to have begun in the cradle. He came of a long line of scientists and from early childhood accompanied his father, himself an eminent physician and scientist, on many of his scientific and archeological excursions. He began the formal study of medicine in Meath Hospital and in the chemical laboratory of Trinity College, but soon went to Glasgow where he devoted himself to the study of chemistry. In Edinburgh he developed a profound interest in clinical medicine, and on his return to Dublin in 1825, he at once took up clinical work in the Dublin General Dispensary. As a student he had published a small treatise "On the Use of the Stethoscope," and the recognition this brought him was in a large measure responsible for his appointment to succeed his father on the latter's resignation as visiting physician at

Meath Hospital. While Stokes was deeply interested in clinical medicine, always he found time to write. Contributions from his pen appeared constantly in medical journals. His "Diagnosis and Treatment of Diseases of the Chest," published in 1837, won instant recognition, and brought home to many readers for the first time the value of auscultation in the diagnosis of diseases of the lung. "Diseases of the Heart and Aorta," published later, met with less popular acclaim, yet is probably of even greater value since it recalls the attention of the physician, too often focused on physical signs only, to the importance of the patient and his symptoms. Cheyne-Stokes breathing and the Stokes-Adams syndrome point to Stokes' acute powers of observation. His untiring industry and his interest in medicine persisted, but a growing conservatism make his later writings less brilliant.

James Young Simpson, born in 1811, was the seventh son of a poor baker, but the family had the ambition to have at least one learned member, and James' elder brothers sent him to Edinburgh University when he was fourteen years of age.



JAMES YOUNG SIMPSON

Three years later he enrolled as a medical student. His notebooks evidence a questioning and a critical mind; the questioning habit remained with him throughout life. At one time he was so shocked by the sufferings of a patient undergoing amputation of the breast that he decided to find other

employment, but returned to his studies with the determination to find some way to lessen pain. He obtained the license of the Royal College of Surgeons, Edinburgh, before he was nineteen years of age, and became assistant to a well-known practitioner. He received his M.D. degree two years later, and at once became assistant to Dr. John Thomson, professor of pathology, a post which he filled for some years at a salary of fifty pounds a year. In 1835, his brothers helped finance a visit to the medical centers of England and France, and in the following year he was appointed house surgeon to the Lying-in Hospital. Two years later he took over the extra-academical class of lectures on obstetric medicine. His capacity for hard work was extraordinary; he went to bed late and rose at three to work on his lectures and papers. His ability brought recognition, but his income was modest and he was still in part dependent upon his brothers. In 1839, after a lively campaign, he was elected to the chair of midwifery at Edinburgh University. This meant additional work and a growing practice, but he continued his writing. All medical subjects interested him, but obstetrics was his chief interest; as an avocation, he wrote on antiquarian subjects. His desire to relieve pain had not been forgotten, and he devoted much time to experimenting with various possible anesthetics. Ether, then given by the open method, was not always successful; he found chloroform most satisfactory. He did not discover anesthesia, it is true, but his personality, his untiring efforts and his able literary defense were largely instrumental in overcoming an antagonism that is now difficult to understand. He died at the age of fifty-nine years, largely, it is said, as the result of overwork. His claim to fame rests soundly upon his contributions to obstetrics and gynecology; obstetrics had been largely in the hands of midwives, gynecology had been practically an unknown science until Simpson came.

James Paget was born in 1814. He never knew poverty but his family was not wealthy; he received an adequate education in England but he did not travel until late in life; he was not a surgical genius and he made no startling discoveries. He was a gentleman and a scholar; by his personality, his constructive interest in morbid anatomy; his painstaking work with the microscope; his conscientious examination of every patient, and his diagnostic skill, he raised the standing of surgery from the low plane to which it had fallen, or from which it had perhaps never risen, to the rank of an honored profession. In Paget's time, his contemporaries had a saying: "You should go to Paget to find out what is the matter with you, and then to Ferguson to have it removed." It is a

tribute to Paget that he would not have quarreled over this verdict. In a quarrelsome era, he was a man of peace; it was the patient, not Paget, that mattered.

Lister, whose name is almost synonymous with surgical antisepsis, was born in 1827. He inherited a delight in learning from a father whose interest in science had led him to help perfect the microscope and whose prosperous wine business made it possible for him to provide his son with every comfort. Lister's Quaker breeding gave him a love of peace and the ability to work hard. He entered University College at the age of seventeen years, and after taking his B.A. and M.B. degrees from the University of London, he became a fellow of the Royal College of Surgeons, and at the age of twenty-six years went to Edinburgh to become Syme's house surgeon. At the age of thirty-three years he took the chair of surgery at the University of Glasgow, but after nine years returned to Edinburgh to fill the same position there. The introduction of general anesthesia for surgical operations was not a blessing at first; the surgical wards were a veritable nightmare. Others before Lister had used antiseptics; the germ theory of suppuration was not his brain child, yet his name is almost synonymous with surgical cleanliness. The surgical asepsis of our day is a long way from the various phases of antisepsis through which Lister felt his careful way, but it cannot be gainsaid that it is primarily to Lister that we owe the relative safety of surgery. Someone has said that as history is divided into time before and after Christ, so surgery should be divided into surgery before and after Lister.

Four centuries of scientific progress in any country cannot be summed up, even in an overly lengthy paper, nor is it possible to select any ten men as standing alone, head and shoulders above their contemporaries. Perhaps it is enough to say that Linacre established medicine as a profession; Caius by establishing a medical school took the first step toward providing medical training; Harvey demonstrated not alone the circulation of the blood, but the road which science must travel. Sir Thomas Browne had what few physicians have, broad general interests and knowledge; Sydenham was the Hippocrates of post-renaissance medicine, the patient was his chief concern. John Radcliffe? If he contributed nothing scientific to medical advance, he made it possible for those who came after him to do better work, and who would quarrel with so striking a personality? Floyer was a second Harvey, the link, let us say, between Hunter and Harvey. Cheselden exemplified manual dexterity with a basic knowledge of anatomy unknown to the barber surgeons of his time. Cul-

len, largely self-educated, brought a new spirit to clinical medicine; focused the physician's attention on the clinical picture as a whole. Percival Pott's name is known to us because of a fracture and a disease which he described, but his greatest virtue is perhaps that he did conscientiously strive to hold his light aloft that others might see. John Hunter sought knowledge for the sake of knowledge; colleagues and patients were more or less incidental, but one owes no apology for genius like his. Edward Jenner, on the other hand, rid the world of one of its greatest curses because he clung determinedly to one idea. Richard Bright was another genius; with all our instruments of precision and our modern equipment, there is probably no one in our time who will contribute so much to our knowledge of morbid clinical anatomy. In William Stokes we see again the true clinician, blessed with the ability to work hard. James Simpson's kindness was perhaps his outstanding characteristic, or the mainspring which drove him to fight the battle for anesthesia, and to make obstetrics and gynecology a science. Paget brought recognition of the fact that a man might be a surgeon and a gentleman; that professional interests were better furthered by peace than by quarreling. As for Lister, even the radio advertiser recognizes the significance of his name!

Is there a lesson for the future to be drawn from this record? If from it we could forecast the future, I believe that while in the future, as in the past, we will have brilliant surgeons, we must look not to surgery for the future progress of medicine, but to the basic sciences, to chemistry and biochemistry, to bacteriology, to physics and to refinements in diagnosis.

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DIAGNOSTIC CRITERIA AND SURGICAL TREATMENT OF ACUTE PERFORATED DUODENAL ULCER

K. W. WOODHOUSE, M.D., Cedar Rapids

Of all of the conditions comprising acute surgical abdominal states one of the most dramatic is the acute perforation of a duodenal ulcer. Moynihan has aptly said that it is one of the greatest surgical catastrophies which can befall a human being. There are few surgical conditions in which prompt diagnosis and treatment are more imperative because of the marked increase in mortality rates attendant to delay in the institution of surgery. Recent advances in both the diagnostic and surgical fields in respect to this condition make its discussion timely.

It has been stressed by Brenner that those ulcers which are most likely to perforate are pathologically, first, the medium-sized ulcer with moderate scar tissue infiltration; second, the small ulcer with a non-indurated base; or third, the acute necrotic ulcer. Perforation is unlikely, but may occur, in the large ulcer with much scar tissue or in multiple ulcers including the "kissing" type. The old maxim that "bleeding ulcers do not perforate" is in general, true but not invariable.

DIAGNOSTIC CRITERIA

The perforation of a duodenal ulcer is *prima facie* evidence of the existence of a duodenal ulcer. Since duodenal ulcer is found predominantly in the male in the ratio of four to one, and most commonly between the ages of thirty and fifty years, we would expect perforation to occur predominantly in the male of this age group. This generalization is true but the proportion of perforations occurring in the male is much more than four to one. Guthrie and Sharer reported 78 consecutive cases of which only two were in females. About three per cent of patients will give no history of previous indigestion. These are presumably the acute necrotic ulcers referred to above, which perforate before symptoms are present. The remaining patients give histories of previous symptoms ranging from mild indigestion to a typical story of duodenal ulcer. Frequently there has been a recent exacerbation of indigestion and pain. This pain, known as "pre-perforation pain" and due to serosal involvement, is more severe than the usual ulcer pain but readily distinguishable from the agonizing pain of free perforation.

At the time of perforation pain comes on suddenly. The patient can usually designate the exact time at which perforation occurred. He frequently

Do you know of any patients who have suffered ill effects from the use of drugs containing desiccated thyroid extract?

See editorial on page 212.

says he feels as if he had been "kicked in the abdomen." This pain is usually in the epigastrium and continues as a constant pain in the epigastrium or right side. Breathing is costal because diaphragmatic movement increases the pain. Vomiting frequently occurs and may contain blood. Horsley states that vomiting is inconstant but nausea is always present. Vomiting was present in less than one-half of Brenner's series. Occasionally left shoulder pain occurs in this condition, as in others with free abdominal fluid or gas, and is due to pneumogastric-spinal accessory reflex. Shock and prostration may be profound, but usually come on promptly after perforation and are usually transitory.

The outstanding physical finding is muscle rigidity, which is more constantly found in this than any other condition and may be very marked in degree. However, an occasional case is seen in which there is little rigidity. The author recently observed such a situation in a patient in whom the perforation occurred following the intake of considerable beer. It seems likely that rigidity in this case was minimal because of the marked dilution of the hydrochloric acid in his stomach. A fluid causing minimal chemical irritation was released into the peritoneal cavity. Little movement of the abdomen with respiration can be observed due to the fixed diaphragm and muscle rigidity. Tenderness is present and is usually marked in degree. Tenderness is usually most marked in the epigastrium but is often present also, or occasionally only, in the right side and even well down in the right lower quadrant due to gravitation of gastric contents down the right gutter. Blalock has shown, experimentally, that shock occurs due to irritation of the peritoneum by gastric and pancreatic juices and bile. This shock may be clinically observed if the patient is seen soon after perforation. In the past, the absence of liver dullness has been stressed as an important finding. This finding is in the same category as Cullen's sign in ectopic pregnancy "valuable if found but seldom present". Soon after perforation the temperature may be subnormal due to the existing shock, but it soon becomes normal or slightly elevated. The pulse is slow compared to the obvious abdominal pathology. The temperature and pulse mount and distension appears after eight to ten hours due to the superimposed infectious peritonitis which develops.

It has long been recognized that in perforated ulcer there is an early leukocytic rise in the polymorphonuclears due to peritoneal irritation and perhaps in part to shock with its attendant loss of fluids into the dilated capillaries. The laboratory is a diagnostic aid in providing the leuko-

cytic and differential count. The most important contribution of the laboratory in the diagnosis of this condition, however, is in the roentgenologic demonstration of pneumoperitoneum. Since the first demonstration of this phenomena by Popper in 1915 this procedure has become increasingly valuable. With the exception of patients who have recently had air injected into the peritoneal cavity or recently undergone a laparotomy, especially under spinal anesthesia, the demonstration of air between the right liver surface and right diaphragm may be regarded as rather certain evidence of the perforation of an air-containing viscus. The value in the diagnosis of perforated duodenal ulcer is obvious. Air may, likewise, gravitate beneath the left diaphragm, but the frequent presence of a gas bubble in the stomach makes the conjecture as to whether an air bubble is intra- or extragastric, hazardous. This problem does not arise on the right side where the demonstration of air in even small amounts is simple. The patient should be sitting up for ten to fifteen minutes before the film is taken to allow gravitation of air beneath the diaphragm. Theoretically, pneumoperitoneum should be present in acutely perforated duodenal ulcer unless there is present a very small perforation which was plugged before the escape of any gas; unless adhesions are present between the liver and diaphragm; unless perforation takes place into perigastric adhesions; unless gas is absent in the stomach at the time of perforation, or the patient did not or could not sit up before roentgen examination. Vaughan and Singer reported 63 proved cases of perforated ulcer in which all patients were examined preoperatively for pneumoperitoneum. In 54 cases or 85 per cent pneumoperitoneum was demonstrable. Guthrie and Woodhouse reported preoperative confirmation of the diagnosis in 63 per cent.

It is obvious that, in the usual case, the diagnosis of acute duodenal perforation is not difficult. The onset of constant terrific epigastric pain occurring suddenly in a patient who gives a history of previous indigestion is very suggestive. This story with the findings of marked abdominal rigidity with marked epigastric or right abdominal tenderness and a relatively low pulse and temperature is diagnostic. The pain is constant in contradistinction to the colicky pain of ureteral colic, intestinal obstruction, gallstone colic or appendicitis. The predominance of right lower quadrant tenderness, which occasionally occurs due to gravitation of gastric contents, may suggest appendicitis, but the history of onset, the preceding indigestion and the marked rigidity usually make the true diagnosis the likely one. In occasional cases it may

be difficult to differentiate acute pancreatitis or mesenteric occlusion. Frequently in these atypical cases the demonstration of pneumoperitoneum makes the diagnosis certain.

TREATMENT

That surgery is the sole treatment of an ulcer perforation is not a controversial point. That surgery should be performed as early as feasible is generally accepted because of the increased mortality rate with each hour of delay. These statements are so well proved that no discussion is indicated.

The surgical procedure to be utilized, however, is less standard and has long been the subject for many arguments among surgeons. For many years a group of able surgeons, including Fleming, McClure, Guthrie, Trout and Finney have felt that in the usual case simple closure of the perforation was all that was indicated because the operative mortality rate was low and the cure was usually complete and lasting. These surgeons recognized that a small group of ten to twenty per cent would require a subsequent gastro-enterostomy for relief of obstruction. They felt this could more safely be done at a later date when a patient was in a much better physical condition to withstand such a procedure. Even this conservative group recognized that occasionally an indurated scarred ulcer could not be successfully closed without causing marked duodenal obstruction and in this instance immediate gastro-enterostomy was indicated. Dissenting from this view, Deaver advocated, to the time of his death, that immediate routine gastro-enterostomy was the treatment of choice in this condition. He felt that its employment reduced the mortality and morbidity rates and made unnecessary a second operation for obstruction. A few surgeons have advocated pyloroplasty. Partial gastrectomy has been advanced as the operation of choice by some foreign surgeons. This is in accord with the more radical treatment of ulcer *per se* in the European clinics. In 1923 Guthrie found, by questionnaires sent to a number of outstanding surgeons, that 64 did not perform gastro-enterostomy after closure of the ulcer while 22 rather routinely did so.

No other treatment was advocated until 1937 when Roscoe Graham reported a procedure which is so simple and obvious it seems impossible that it was not advocated earlier. Many surgeons have repeatedly noted a tip of omentum trying to plug, or succeeding in plugging the perforation; yet they have pulled the omentum away and sutured the perforation. Graham advocated using the omentum alone to close the hole. He placed

three interrupted catgut sutures through and through, one above, one at the site of and one below the perforation. These sutures were carried through good tissue wide of the thin center of the ulcer crater and were left long and untied. A piece of omentum, either free or attached, was then laid over these sutures and they were tied just tight enough to hold the graft in place. Only late cases were drained. It was Graham's contention that the fundamental surgical principle applicable to all emergency surgery, that the patient should be treated solely for the lesion creating the emergency, should be observed to a greater degree in these critically ill patients with an acute perforation of a duodenal ulcer than in almost any acute intraperitoneal lesion, and that we have no responsibility to such patients but to save their lives. It was his contention that anything of a more extensive character, which aims to do more than this, under the conditions attending the perforation of a duodenal ulcer, can justifiably be considered meddlesome surgery. This logic backed by the low mortality rates which he reported, seems incontrovertible. That occasionally, in certain very ill patients, it is important to take a short time for preoperative preparation, especially with intravenous fluids, is stressed by Graham and other surgeons.

MORTALITY RATES

In 1901 Moynihan collected 45 operated cases from the literature. The mortality rate was 83.6 per cent. In 1904 Mayo reported operations on six patients with only two deaths. More recent mortality figures are difficult to compare because they vary so, depending on the number of early and late cases in the series. This is true of the mortality rate of 7.5 per cent reported by Deaver who employed closure plus gastro-enterostomy on early cases principally. Trout reported a mortality rate of 22 per cent in all cases following simple closure. This is in line with the composite series reported by Fleming of over 1,000 patients operated on by experienced surgeons in which the mortality rate was 23.6 per cent. In reporting these figures in 1931 Fleming stated "one finds that the technical methods in closing the perforation in use today as described by Mayo, Moynihan and Cellan-Jones leave little to be desired." This statement was made six years before Roscoe Graham reported his series of 51 consecutive perforated duodenal ulcers, treated as described above, with a single death. Subsequently, Graham has increased his series to 60 with two deaths, a mortality rate of 3.3 per cent.

Guthrie and Sharer in 1935 reported from the Guthrie Clinic, 78 cases of acute perforation of

duodenal ulcer. These were treated conservatively except for a few which required gastro-enterostomy. The procedure followed was of through and through sutures of chronic gut placed close to the perforation, reinforced by a row of interrupted sutures or purse string through the serosa. Contaminating gastric contents were sucked out and in many cases drains were used, especially early in the series. Later cases were closed without drainage unless extensive soiling or poor oral hygiene made this procedure seem hazardous. In 1939, Guthrie and the author reported a series of ten cases of perforated duodenal ulcer in which the Graham closure was used. These patients were operated upon from three and one-half to nineteen hours after perforation, the average being 7.4 hours. Only the case of longest duration had drains introduced. The other cases had nothing done except the Graham closure and aspiration of gastric contents from the peritoneal cavity. Although this was not a large enough series to be conclusive, there was only one death, representing a mortality rate of only ten per cent with a new operative procedure, about one-half of the prior mortality rate in that clinic.

The most frequent cause of postoperative death following perforation is acute diffuse peritonitis. This accounted for 65 per cent of 253 deaths reviewed by Fleming and 33.3 per cent of the mortality rate in the series reported by Guthrie and Sharer. The usual organisms found are *Streptococcus haemolyticus*, *Streptococcus viridans*, *Bacillus coli* and staphylococci. Remaining postoperative deaths are accounted for principally by bowel obstruction, pulmonary complications, prostration and subdiaphragmatic abscess.

CONCLUSIONS

It is essential that the diagnosis be made promptly in perforation because of the great difference in mortality rates between those patients operated upon early or late after perforation.

Pneumoperitoneum is a valuable diagnostic aid in doubtful cases and reassuring confirmatory evidence in any case. The absence of air beneath the diaphragm does not, however, exclude the diagnosis of perforated duodenal ulcer.

The simple method of surgical closure of these cases advocated by Graham, has remarkably lowered the mortality rate in his experience, and further experience with this method by other surgeons would seem to indicate it as the ideal method of caring for perforated duodenal ulcer.

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TECHNIC OF EXAMINATION OF THE SPINE AND MANIPULATIVE TREATMENT*

LEO J. MILTNER, M.D., Davenport

In this presentation, the writer wishes to discuss two subjects. The first part represents a concise review of the technic of examination of the spine and its associated structures; the second concerns the mechanical causes of backache and the history, indications and technic of manipulative treatment of the spine.

TECHNIC OF EXAMINATION

Examination of the spine^{1, 2, and 3} represents merely a part of the routine physical examination, and is performed in complete detail only in cases with special complaints in that part of the skeletal system. Roentgenographic studies of the vertebra must be used in addition to the physical findings and special tests if a correct diagnosis is desired.⁴ In order that the examination of the spine and its associated structures be complete, tests should be made with the patient in six different positions: walking, standing, sitting, lying on the abdomen, lying on the side and lying on the back.

Examination of patient walking. One should note general appearance, abnormalities of gait, type of posture, and evidence of congenital abnormalities of the spine and body as a whole.

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Examination of patient in standing position. It is well, as an initial step, to mark the spines of the vertebrae and pelvis with a skin pencil or burned cork. After the posterior superior and posterior inferior spines of the ilium have been marked, lines connecting these points should be made so that abnormalities of alignment may become more obvious. Abnormal mechanics of the lower extremities indirectly effect the mechanics of the spinal column; therefore, they become factors in the etiology of backache. Hence, it is important that the examiner test the motion of all the joints of the lower extremities, and that abnormalities of function be recorded.

Next, test the motions of the spinal column in the following directions: flexion, extension, side bending to the right and left, and rotation, both clockwise and counter-clockwise. To test rotation, an assistant should grasp the pelvis and hold it firmly while the examiner rotates the thorax passively, the patient having been previously instructed to relax the muscles of the trunk to the best of his ability.

While the patient continues standing, the areas of pain should be marked so that these areas may be checked later with the patient in other positions. At the same time, the examiner should exert both superficial and deep pressure over the areas of pain, and in this way attempt to determine whether the lesion is acute or chronic. Heavy percussion with the doubled fist may be used with the patient's spine slightly flexed, the blows being struck over the spines of the vertebrae. In acute or subacute conditions, pain will be aggravated by percussion. On the other hand, the pain of many chronic conditions of the spine is not affected by this procedure. One should test the sensations over the spine and thorax, particularly if there is a suspicion of arthritis, radiculitis, or neuronitis. In the von Bechterew type of arthritis of the spine, hyperesthesia is found not infrequently over the posterior thorax.

If arthritis of the dorsal spine is suspected, it is well to measure the expansion of the chest. The difference between the measurements of complete expiration and complete inspiration should be recorded. Limitation of expansion of the ribs is often found in early arthritis of the costovertebral joints. Pressure on the lateral chest walls may aggravate the pain in these joints.

If the patient complains of sciatica and has a tender area in the lumbar or sacro-iliac regions. Steindler's test⁵ is helpful from the standpoint of differential diagnosis. To perform this test, the examiner should locate the point of maximum tenderness in the aforementioned region. By careful palpation, it is usually possible to localize

the area of maximum tenderness to a spot not much larger than the size of a silver dollar. This spot is anesthetized by infiltrating it with novocain solution. If the pain in the sciatic nerve disappears immediately following anesthetization of the tender spot in the lumbosacral area, the sciatic pain is believed to be of a referred nature, i.e., it is referred from primary pathology in the lower back.

Examination of patient in sitting position. With the patient in a sitting position, one should again inspect the curves of the spine. Usually the normal standing lordosis flattens considerably during sitting unless the lordosis is maintained by muscle spasm or pathologic changes in the vertebrae. Sciatic scoliosis also tends to diminish when the patient sits. Since sitting relaxes both the spinal and pelvic femoral muscles, it tends to relieve backache, especially in cases of acute or subacute myofibrositis. Percussion on the top of the patient's head is a helpful test if the examiner suspects an acute injury of an articular facet. Percussion may produce pain at the site of the injury. Conversely, lifting a patient by the head may relieve this pain.

Examination of patient lying on abdomen. With the patient lying on the abdomen and relaxed, it is advisable to recheck the location of the tender area, and by palpation to note the presence or absence of muscle spasm. If muscle spasm is present, and if myofibrositis is suspected, the skin should be lubricated thoroughly with liquid petroleum or some oily substance in order best to palpate for bandlike thickenings of muscle and fascia which are sometimes found in this condition. Without adequate lubrication of the skin, it is very difficult to feel the bandlike thickenings, since they are deeply situated in the long axis of the muscles. Areas of radiated pain in the lower extremities should be outlined and recorded in accordance with the level of the peripheral nerves at their exit from the spine. The level of the lesion is thus more accurately understood.

Examination of patient lying on the side. The patient should be examined both on the right and left sides. Passive rotation of the vertebrae both in the clockwise and counter-clockwise directions should be checked and any limitation of rotation should be recorded. Ober's test for contracted fascia lata⁶ should be performed if there is a complaint of low back pain or sciatica. It has been proved conclusively that contracted fascia lata may be one of the etiologic factors in the two conditions just mentioned. To perform this test, the under hip is held flexed by the patient. The examining surgeon then hyperextends the upper hip.

If the fascia lata is not contracted, the knee supported by the examiner should adduct passively almost to the examining table.

Examination of patient lying on the back. Goldthwait's sign is essentially the same as the straight leg raising test. With the knee held in an extended position, the entire lower extremity is flexed passively as far as possible. Limitation of normal flexion indicates a positive finding. The straight leg raising maneuver aggravates the pain of sacro-iliac, sacrolumbar or sciatic disease. Gaenslen's sign is elicited as follows: The patient is requested to draw the knee up to the chest on the affected side and to hold the knee in that position. The opposite hip is hyperextended over the lateral edge of the table. This maneuver produces a rotary effect upon the sacro-iliac joint of the affected side and, consequently, aggravates the pain. Laguerre's sign, or the foot to knee test, is likewise a test for sacro-iliac pathology. To perform this test, one foot should be placed on the front of the opposite knee. Downward pressure on the knee produces external rotation of the thigh and aggravates the pain in an affected sacro-iliac joint. With the patient lying on the back, areas of radiated pain on the posterior aspect of the thighs and legs should be noted. As a final part of the examination, both the deep and superficial body reflexes should be recorded. In the lower extremity, true sciatic neuritis often produces diminished achilles and knee jerks and not infrequently sensory changes.

Examination of the cervical spine. For complete examination of the cervical spine, one should note the general alignment and curves, and especially the position in which the patient carries the head. By palpation, muscle spasm, muscle contracture and tenderness may be elicited. Motions of the cervical spine should be tested in all directions. The location of the painful areas should be recorded. Likewise, the area and distribution of radiated pain in the occipital, cervical and brachial nerves should be noted.

BACKACHE AND MANIPULATIVE TREATMENT OF THE SPINE

Backache is one of the many symptoms in medicine which has a large number of etiologic possibilities. During recent years various causal factors have been clarified. As a result of this clarification, methods of treatment are now arranged so that we may attack the problem from several angles.⁷ "On the anatomical side, from anomalies and discrepancies of bone relationship; on the static physiological side, from the standpoint of poor body mechanics; on the kinetic side, from

the aspect of trauma and sprain of the muscles and ligaments and of joint subluxation; from the general pathological aspects of suppurative arthritis, tuberculosis, malignancy, etc.; and from the neuropathological aspects of cord pressure from prolapsed discs, tumors and hypertrophied elements."

The form of treatment which the writer wishes to discuss is a method which is one of the oldest therapeutic procedures used by bone and joint surgeons, namely, manipulative treatment.⁸ German and English orthopedic surgeons have been using manipulative measures on various joints, including the spine, extensively during the past thirty to fifty years. In America, however, irregular practitioners have caused manipulative treatment of the spine to fall into disrepute because they have used manipulation for every back ailment and for all body ailments in no way related to the spine. We are aware of these abuses so that further elaboration on this subject is unnecessary. Approximately twenty years ago, Baer⁹ developed a manipulative technic for the treatment of sciatica and of low back conditions. His procedures, however, did not become popular in America and have been consigned to the outer regions of therapy until the last few years. At the present time, manipulation for carefully selected cases has regained the approval of the majority of the orthopedic surgeons in America.

We do not hesitate to manipulate superficial joints such as those of the fingers, elbows, shoulders, feet, knees and hips. It is difficult to understand why there should be objection to manipulating deeper joints such as those of the spine. Our experience with manipulation of both the cervical and lumbar vertebrae has been sufficiently encouraging to warrant continuing this method. Not infrequently we see patients with apparently normal or negative roentgenograms but with a definite clinical picture of sprain or subluxation of the vertebrae. The clinical picture may present definite disability with pain and muscle spasm and sometimes malalignment of the spine. Many of these conditions have been condemned by the negative x-ray pictures, and the patients have been through many hands until they are finally consigned to the diagnostic category of neurotic individuals. Excellent results have been obtained in many of these cases by manipulation with or without anesthesia followed by traction and heat and prolonged rest.

In discussing manipulative treatment, it is important to emphasize the necessity for selecting the cases carefully, and at the same time to remember that manipulation of the spine is not a

panacea for all cases of backache, and that when used, it should be combined with the other forms of therapy. In our experience, manipulation of the spine is often helpful as a part of the treatment of backache due to subluxation, impingement and overriding of the articular facets; chronic myofibrositis; and adhesions and mild stiffening of the spine following chronic sprain and "burned out" arthritis. Manipulation of the spine may be performed with or without anesthesia. Good relaxation of the muscles is essential for successful manipulation. If anesthesia is used, intravenous pentothal or gas is preferable. If anesthesia is not used, the patient should have a preliminary treatment consisting of heat and massage for twenty to thirty minutes to relax the muscles.

Technic of manipulation of the lumbar spine. In order to perform manipulation correctly, one should have an assistant. With the patient lying on his side on a flat-topped table, the assistant holds the shoulders while the operator exerts a forceful clockwise rotatory force on the pelvis. With the patient in essentially the same position, counter-clockwise rotatory maneuvers are then performed in the same manner. The patient is turned on the opposite side and the same maneuvers are repeated. Flexion of the spine may also be exerted with the patient lying on the back, but this maneuver must be performed with caution because of the possibility of tearing the posterior spinous ligaments or of compressing the vertebrae. Likewise, gentle hyperextension maneuvers may be used with the patient lying on the abdomen. If the patient shows a lateral curvature of the spine due to sacro-iliac or sciatic trouble, lateral motions of the spine may also be exerted with the patient lying on the back.

Manipulative stretching of the sciatic nerve for chronic sciatica. In cases showing sciatica due to arthritis, or impingement of the lumbosacral articulations, manipulative stretching of the nerve is often a helpful procedure. To perform this manipulation, the knee is held in an extended position, and the entire extremity is then flexed as far as possible. The manipulative procedure is repeated from one to three times.

Manipulative treatment of the cervical spine. The indications for manipulation of the cervical spine are essentially the same as those for the lumbar and dorsal spine. The patient should be relaxed, preferably under anesthesia. Longitudinal traction is applied with a head halter. The amount of traction may be gauged by a spring

scale. The number of pounds pull should never be greater than two-thirds of the patient's body weight. While applying the maximum amount of traction, the head is rotated forcibly, first to the right and then to the left.

COMMENT

In the first part of this presentation, the author has attempted to present in a concise manner the technic of examination of the spine and its associated structures. The various special tests are mentioned, and the significance of many of the findings is explained.

Manipulative procedures are now added to the armamentarium of the orthopedic surgeon. They are not offered as a cure for all cases of back pain. On the contrary, they represent only one of the methods of treatment for one group of back conditions. Manipulation is not always sufficient by itself and must be combined with other orthopedic measures chiefly of a physiotherapeutic nature. Postural defects should be noted and corrected. Corrective exercises designed to redevelop the weakened muscles of the spine and abdomen, adequate bed rest, massage and short wave heat have been very helpful adjuncts.

Manipulative treatment should be restricted to those cases of backache which show one or more of the following conditions: anatomic variations (sacralization, impingement of transverse processes, tropism, etc.), malposture, dislocations (apophyseal subluxation, spondylolisthesis, etc.), fasciitis and myofascial syndromes, and in cases showing mild rigidity of the spine following "burned out" or quiescent arthritis of the non-ankylosing type.

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ADHERENT PLACENTA AND
OBSTETRIC SHOCK

S. W. BARNETT, M.D., Cedar Falls

Non-expelled placentas are always of great concern to the obstetrician, especially in home and general practice. It is the author's belief that all these patients should be hospitalized if the placenta has not been expelled in twenty-four hours. It is well known that after twenty-four hours bacteria begin to invade the placental tissue and the uterine cavity. The longer the delay in emptying the uterus, thereafter, the greater is the danger of infection. Retained placentas are usually expelled spontaneously after twenty-four to forty-eight hours. Adherent placentas more frequently demand interference and manual aid. Placenta accreta must be diagnosed, since expulsion is impossible, and hysterectomy is the treatment of choice even with a 20 per cent mortality rate. The only other course of treatment is "watchful waiting," with a mortality rate of 80 per cent. Placenta accreta is, fortunately, uncommon.

The only absolute indication for immediate attempt to remove the placenta is hemorrhage. If no bleeding exists, it is wise to wait until spontaneous separation occurs. Predisposing factors to uterine atonia are first, poor physical condition of the patient (anemia, cardiac conditions, etc.); second, obstetric accidents, most prominent of which is hemorrhage; third, exhaustion by prolonged labor; and fourth, obstetric or surgical shock. Uterine tone may be increased by small repeated doses of ergotrate or pituitrin; it is usually restored after twenty-four to forty-eight hours and the placenta expelled. However, at times, one is confronted with complications which change the usual method of procedure. The existing emergency must be met before the placenta is considered. Life is more precious than a non-expelled placenta, and entering the uterus even to control hemorrhage demands careful preparation and consideration to existing details. Good obstetric care still remains 90 per cent good judgment.

CASE REPORT*

The case to be presented was complicated by surgical or obstetric shock, which varied the usual procedure. The following progress notes describe the case which I hope will be of interest.

The patient was a primipara, twenty-seven years of age. She first entered the office July 5, 1938, having had her last menstrual period on April 28 of the same year. Her general physical condi-

tion was good; she was possibly two and one-half months pregnant. The blood pressure was 115/68, the pulse 72. Her weight was 133 pounds. The examination of the urine was negative. The blood count was erythrocytes, 4,500,000; leukocytes, 7,000; hemoglobin, 90 per cent. Progress throughout pregnancy was normal. On her estimated date of confinement the blood pressure rose to 148/90, the pulse to 100. Her weight at this time was 167 pounds. The urine was normal. The presentation was occipito-laeva anterior, and the head was in the pelvis.

Labor began February 20, 1939, with premature rupture of the membranes at 12:40 A. M. Progress was normal with good pains. Seconal, grains three, were given at 2:45 A. M.; grains one and one-half were repeated in two hours. At 6:15 A. M., because of extreme restlessness, she was given morphine sulfate, grain one-sixth, with which she obtained some rest. At 10:30 A. M. she was taken to the delivery room where ethylene and oxygen were given. The head descended normally until it reached the perineum, when labor was arrested. Low forceps were applied, a left episiotomy was performed, and a nine pound ten ounce baby girl was delivered. The patient's condition had seemed satisfactory, with the pulse between 100 and 104. Immediately following delivery of the baby, the pulse rate suddenly rose to 144. There was no external bleeding and the uterus was examined for a hidden hemorrhage. The uterus was in a relaxed state, occupying most of the abdominal cavity. Massage caused it to contract only to relax again. The patient seemed to be in extreme shock and her pulse rate rose to 188 (counted by stethoscope). She was pale, and unresponsive. The systolic blood pressure was 80 and the diastolic was unreadable; the erythrocyte count was 3,740,000; there was no bleeding. The placenta was ignored. The episiotomy was hurriedly closed with three through and through sutures, and treatment for shock was administered. She was given caffeine-sodium-benzoate, grains seven and one-half, adrenalin, and 1,000 cubic centimeters of five per cent glucose intravenously. External heat was applied. After approximately one hour her condition was slightly improved, although she was still unresponsive. No uterine bleeding was present. Treatment for shock was continued. At 11:30 P. M. she was returned to her room, at which time her temperature was 98.6 degrees, pulse 140, and respirations 20. She responded to questions, but otherwise was semi-conscious. It was thought that this was a cardiovascular collapse, and stimulants were continued. Still there was no bleeding, only a very small amount of colored serous discharge. The uterus

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remained completely atonic. Ergotrate three-tenths of a milligram was given every three hours; 2,000 cubic centimeters of five per cent glucose were given during this twenty-four hours.

3rd day, February 23. The condition remained approximately the same; temperature 101 degrees, pulse 144, respirations 22. She had had some slight cramps. Small doses of pituitrin had been given. The blood count was erythrocytes 3,450,000, leukocytes 25,400, and hemoglobin 70 per cent. Examination with a speculum revealed the cervix to be closed around the cord and membranes. The cervix was dilated manually with the thought of removing the placenta; however, the edge was so firmly adherent and the patient's condition so extreme, that further manipulation was not carried out. Some foul smelling discharge was present.

5th day, February 25. Temperature was 101.6 degrees, pulse 144, respirations 24. There was a moderate amount of foul smelling lochia. Liquefaction of the cord had occurred until it was only in the vaginal cavity. The blood count was erythrocytes 3,900,000, leukocytes 9,600, and hemoglobin 80 per cent. Under ethylene-oxygen anesthesia, the cervix was dilated manually and an effort was made to remove the placenta. The lower border of the placenta was at approximately the lower border of the lower uterine segment. Separation of the placenta was accomplished by inserting the fingers close to the uterine wall and gradually spreading the fingers. It was very adherent and could be heard as it was separated with the fingers. After separating approximately half of the placenta, it was impossible to make further separation with the hand. A long heavy placental forceps was inserted, being guided with the hand and the blades opened, imitating the opening of the fingers. The uterus was supported by an assistant who was able to feel the instrument beneath the uterine wall. The separation could easily be heard as if two adherent surfaces were being pulled apart. The manipulation consumed about forty-five minutes. Preparation for an immediate hysterectomy had been made in case of an emergency. After removal of the placenta there was very little bleeding. However, as a precautionary measure, and in an effort to increase the uterine tone, the uterus and vagina were packed. The patient's condition was extremely poor. She immediately returned to her previous state of extreme shock. She was cyanotic, comatose and severely dyspneic. Treatment for shock was again instituted.

7th day, February 27. The temperature rose to 103 degrees, pulse 140, respirations 26. The blood count was erythrocytes 2,900,000, leukocytes

24,000, and hemoglobin 65 per cent. She was given a transfusion of whole blood, cross-typed. After 150 cubic centimeters had been given she complained of a severe pain in her left shoulder and back. Her condition rapidly became critical. The transfusion was discontinued and she was given emergency treatment for collapse. After the transfusion the erythrocytes numbered 2,870,000. The uterine packing was removed. Ergotrate and pituitrin were continued. Her condition was considered very critical.

9th day, March 1. Positive staphylococcus blood cultures were obtained; two previous cultures had been negative. Sulfanilamide, 80 grains, daily, combined with sodium bicarbonate, was given during the twenty-four hours in divided doses at four hour intervals. The blood count was erythrocytes 2,500,000, leukocytes 22,000, and hemoglobin 60 per cent. She was typed for transfusion by the direct method, but after 160 cubic centimeters had been given, the patient lapsed into severe shock with cold perspiration, dyspnea and unconsciousness. Respirations were rapid and shallow. She became cyanotic and her pulse was thready. Treatment for shock was instituted.

17th day, March 8. The condition of the patient gradually improved, so that she was taking food and liquids. The bowels moved daily. The uterus remained contracted firmly and gradually lessened in size. The blood count was erythrocytes 3,120,000, leukocytes 18,400, and hemoglobin 75 per cent.

19th day, March 10. In the morning her temperature was 100 degrees, pulse 110, respirations 22. At 1:30 P. M. she had a sudden severe pain in the left lower chest. The pain was so severe that breathing was difficult. She was given morphine sulfate, and a tight binder was placed on her chest. She had no cough. The blood count was erythrocytes 3,800,000, leukocytes 19,600, and hemoglobin 80 per cent. The urine was normal. A diagnosis was made of a probable pulmonary embolism.

21st day, March 12. The temperature rose to 102 degrees, pulse 116, respirations 32. She still complained of pain in the left chest and in the left leg below the knee. Examination revealed swelling in the left ankle and definite tenderness in the femoral triangle. The leg was elevated and treatment was applied for femoral thrombosis.

22nd day, March 13. There was definite femoral thrombosis of the left leg. The pain in the chest began to subside, but a definite pleural friction rub could be heard. The temperature was 102 degrees, pulse 140, respirations 34.

24th day, March 15. Her condition seemed considerably improved except for a diminished

erythrocyte count. The temperature was 100.8 degrees, pulse 112, respirations 24. The blood count was erythrocytes 2,480,000, leukocytes 10,000, and hemoglobin 60 per cent. The pleural friction rub had disappeared, but the left leg still remained swollen with all the findings of femoral thrombosis. She was retyped for transfusion by the direct method.

26th day, March 17. She was given 500 cubic centimeters of citrated blood. No reaction occurred. The blood count was erythrocytes 3,450,000, leukocytes 10,800, and hemoglobin 80 per cent. The temperature was 100 degrees, pulse 96, respirations 24.

29th day, March 20. Her condition gradually improved. She complained of some pain in the right leg. No definite swelling could be found, but treatment for right femoral thrombosis was instituted.

30th day, March 21. Condition remained approximately the same, except for a definite right femoral thrombosis.

35th day, March 26. The temperature was 99 degrees, pulse 96, respirations 20. Her general physical condition was much improved, and she was taking a general diet. The blood count was erythrocytes 4,500,000, leukocytes 9,400, and hemoglobin 75 per cent. Both limbs gradually improved, and the chest was entirely well.

39th day, April 1. Her temperature had been normal for five days. Stockinettes were ordered for both legs. All medications were discontinued except Ilextron No. 55, of which two capsules three times a day were given. Both legs were lowered.

44th day, April 6. Stockinettes were placed on the legs and she was allowed up in chair for a short time.

50th day, April 12. The patient was discharged from the hospital and sent home in an ambulance. She was allowed to be up in chair for a short time. The blood count was erythrocytes 6,000,000, leukocytes 10,800, and hemoglobin 90 per cent. The urine was normal. Her general physical condition seemed good, although there was still some swelling in both legs, which were being supported by elastic stockings. The baby, whose birth weight was nine pounds and ten ounces, had been fed by formula since her birth. She was discharged with her mother on April 12, 1939, weighing thirteen pounds.

CONCLUSION

It is agreed by all obstetricians that the placenta should be removed immediately if hemorrhage is present. If there is no hemorrhage, the placenta should be removed within twenty-four to forty-

eight hours, provided a severe complication has not arisen. Often it is necessary to postpone removal of the placenta until such time as the condition of the patient can withstand instrumentation. Good judgment still remains the best prerequisite of the obstetrician.

CANCER OF THE STOMACH

FREDERICK W. MULSOW, M.D., Cedar Rapids

A survey of cancer of the stomach as it occurs in Cedar Rapids was begun in 1935 and covers the last five years. Carcinoma of the stomach is apparently not as common in Cedar Rapids as many surgeons and statisticians would have us believe it is for the country in general. It was for this reason that the study was undertaken.

Osler's Principles and Practice of Medicine, (1938), carries this statement, "In an analysis of 30,000 cases of cancer, W. H. Welch found the stomach involved in 21.4 per cent, this organ standing next to the uterus in order of frequency." In Musser's Internal Medicine we find that: "Cancer of the stomach is responsible for a large percentage, perhaps 30 to 40 per cent, of all cancer deaths." In the Proceedings of the Staff Meetings of the Mayo Clinic for February 14, 1940, is this statement: "Of this number (160,000 cancer deaths) about 50 per cent or 80,000 die from cancer of the gastro-intestinal tract, and of these 80,000, approximately 50,000 die of cancer of the stomach." These figures were taken from a report by Dublin of the Metropolitan Life Insurance Company. Many other quotations could be given where cancer of the stomach is reported to cause from 25 to 40 per cent of all cancer deaths.

Due to the fact that the author had seen so few cases of gastric cancer in Cedar Rapids, a study of this condition was begun about five years ago to find out more about the frequency of gastric cancer here. All of the deaths reported at the city hall, during the last five years, were examined, with special attention to cancer of the stomach and cancer in general. The physicians who had signed the death certificates were consulted regarding the history and the various procedures used in making the diagnosis. I may say here that the physicians cooperated very well in this work. Information regarding the frequency of gastric cancer in Linn County was also obtained from the Division of Vital Statistics in Des Moines.

During the past five years 433 deaths from malignant growths were reported at the city hall

in Cedar Rapids. Of this number 93 were of the colon, 52 of the breast, 50 of the uterus and 66 of the stomach. It is well known that the diagnosis of cancer of the stomach is very difficult at times, and often is made for the first time at the necropsy. The figures in Table I indicate that the diagnosis was made by, or depended largely upon, that procedure. Thus many of those after exploration, had previously been diagnosed by the x-ray. Those in the doubtful column had very few definite clinical findings and no laboratory work, but many of these patients refused this type of work and the attending man had to do the best he could without these aids. Many of these patients were seen only a few times, and had been treated by non-medical men. Among the eighteen doubtful cases there were four who died of fatal gastric hemorrhage or vomiting of blood. Others had symptoms of intestinal obstruction, enlarged liver, and other ill-defined abdominal conditions with marked loss of weight. During the past three years a study was made concerning the frequency and diagnosis of cancer of the colon, in the hope of learning how many of these may have been primary in the stomach. About 86 per cent of all cancers of the colon were surgically removed or explored, or diagnosed by the x-ray.

However it seems possible that some of the cases reported as cancer of the liver, may have been primary in the stomach. Cancer of the liver was reported as the cause of nineteen deaths. Seven of these were found by the surgeon to be of the liver or gallbladder, but others may have been primary in the stomach, colon or pancreas. If all of the cases reported as cancer of the liver (not explored), and all of those as doubtful of the stomach are included as gastric cancer, we find that 18 per cent of all cancer deaths were due to gastric cancer. However, if those of the liver are not included we have 15 per cent of the cancer deaths being due to carcinoma of the stomach. The frequency of cancer of other organs more often affected and some other abdominal cancers are shown in Table II.

Of the 66 cases of gastric cancer, 38 were in males and 28 were in females. The average age was 69.2 years. The average age in the male group was 68.2 years, and in the female group it was 71 years. The high percentage of gastric cancer reported by others may be due to the tendency of such cases to gravitate toward medical centers, where the majority of the reports concerning cancer of the stomach originate.

CONCLUSIONS

This study of carcinoma of the stomach over a five-year period reveals that death from cancer

of the stomach is considerably less in Cedar Rapids than the reported frequency in many journals and books. A study during the last three years of all abdominal malignancies does not indicate that many gastric cancers are missed or are reported as of some other organ. There is no apparent reason for cancer of the stomach being less frequent in Cedar Rapids than in other cities of a similar size, unless it may possibly be that other abdominal malignancies as well as cancer of the stomach have been more carefully studied, and of course the numbers may be too small to draw the proper conclusions.

TABLE I—METHODS OF DIAGNOSING GASTRIC CANCER

Diagnosed by	1935	1936	1937	1938	1939
Necropsy	1	0	4	1	1
Biopsy	0	1	1	2	0
Explored	2	3	2	1	3
X-ray	0	1	1	4	4
Clinical	5	3	3	3	2
Doubtful	5	2	4	4	3
Total	13	10	15	15	13

TABLE II—DEATHS FROM CANCER OF SOME OTHER ORGANS OF THE BODY

	1935	1936	1937	1938	1939
Colon	22	12	23	13	23
Breast	7	15	8	9	13
Uterus	11	9	9	12	9
Liver	6	6	4	3	0
Pancreas	3	3	3	1	5
Abdominal	0	0	1	3	2
Miscellaneous	26	38	46	45	43
Total	75	83	94	86	95

CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

THE X-RAY DIAGNOSIS OF BRONCHIOGENIC CARCINOMA

CARL L. GILLIES, M.D.,

Department of Radiology, Iowa City

While bronchiogenic carcinoma almost always produces changes in the lung fields visible by x-ray, the differential diagnosis from other pulmonary diseases may be exceedingly difficult. As recently pointed out¹ "its rôle as an imitator is perhaps its most characteristic feature." Since it usually arises from a main bronchus or one of its larger branches, bronchiogenic carcinoma is practically always a unilateral disease and is found near or at the hilum of the lung.

When the actual tumor mass is visible it is usually of homogeneous density. In size it may be a huge mass large enough to displace the heart and mediastinum to the opposite side and to simulate massive pleural effusion. From this huge tumor on one extreme, all variations in size occur, down to lesions too small to be visible, or to

occlude a bronchus. Infiltration of the peribronchial lymphatics by tumor tissue frequently occurs and while readily discernible on the films the appearance differs little, if any, from that of inflammatory reactions. Metastatic regional, and hilar lymph nodes may also be seen. Indirect signs occur from the partial or complete occlusion of a bronchus. With partial occlusion the lung tissue distal to the obstruction may show increased aeration on films taken in expiration. With complete occlusion atelectasis with displacement of the heart and mediastinum to the involved side occurs. Atelectasis is the most common accompaniment in bronchiogenic carcinoma. Secondary infection is a frequent complication so that a lung abscess or bronchiectasis may dominate the picture.

The greatest aid to the x-ray diagnosis is the instillation of an opaque medium into the involved bronchus. The demonstration of a filling defect, a narrowed or occluded bronchus, is strong circumstantial evidence in favor of a bronchiogenic carcinoma. Progress films in doubtful cases are also of great importance in arriving at a correct diagnosis.

Farrell² in a study of fifty proved cases of bronchiogenic carcinoma found the x-ray changes to be present in the following proportion:

Atelectasis	40%
Increased linear markings.....	28%
Mass	24%
Abscess	6%
Pleural effusion	2%

The x-ray diagnosis of bronchiogenic carcinoma is difficult, not from lack of findings, but because of the similarity in appearance to a wide variety of other lesions. It, therefore, becomes necessary to evaluate all possible clinical evidence in addition to the x-ray findings before one can arrive at an opinion.

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THE X-RAY DIAGNOSIS OF CARCINOMA OF THE ESOPHAGUS

CARL L. GILLIES, M.D.,

Department of Radiology, Iowa City

In making an x-ray examination of the esophagus it is essential to use some contrast substance to outline the lumen. Suspensions of barium in water or barium incorporated in some solid, such as gelatine or cocoa butter, melting at body temperature, are satisfactory media.

Primary carcinoma can, and frequently does,

involve the esophagus at any level. It produces a characteristic defect in the lumen. The involved segment is narrowed, rigid and irregular. Although fluoroscopically the obstruction may be marked, a small tortuous stream of barium can usually be seen to trickle through an eccentrically placed lumen. Because of the relatively short duration of the disease, there is little, if any, accompanying dilatation of the esophagus above a carcinoma.

In differential diagnosis, chemical stricture, cardiospasm and non-opaque foreign body are the only lesions to be considered. The differentiation can nearly always be made from the history alone. A non-opaque foreign body, such as a piece of meat, may produce a filling defect in the esophagus indistinguishable by x-ray from carcinoma. Chemical strictures occur at the junction of the upper and middle thirds of the esophagus. By x-ray the involved area shows a long, irregular stricture centrally located and with little dilatation above. Cardiospasm always occurs at the level of the diaphragm and is characterized by a smooth, central constriction that allows the barium to pass in intermittent jets. Because of the long duration of this condition, there is always a marked dilation of the esophagus above.

The presence of a carcinoma in the esophagus is easily detected by x-ray. With an adequate history and careful fluoroscopic and film examinations the correct diagnosis can be made with a very high degree of accuracy.

Irradiation offers very little in the treatment of carcinoma of the lungs and esophagus. It has been employed in the past mainly because in spite of recognized poor results, other methods of therapy have offered even less. Any method of treatment which holds promise of better results should be supported.

CARCINOMA OF THE LUNG

VERNON W. PETERSEN, M.D., Iowa City

A survey of the subject of pneumonectomy for malignant disease warrants the conclusion that the operation can now be admitted to a definite place among the accepted surgical procedures of today. The technic has been developed to a point where the procedure can be removed from the class of the spectacular and be recommended as the treatment of choice in patients who are good surgical risks.

The fact that animals could survive pneumonectomies was demonstrated as long ago as 1881. The first attempt at pneumonectomy in man was made in 1910, but the patient did not survive.

Several subsequent attempts were unsuccessful, but in 1931 the first successful total pneumonectomy was made for bronchiectasis on a patient who was twelve years of age. As is well known, the first successful total pneumonectomy for carcinoma was performed by Graham and Singer in April, 1933, on a forty-eight year old man. This patient was reported to be alive and well as recently as several months ago. In the same year, 1933, three additional patients survived the procedure, and since these early reports the list of successful operations of this type has grown steadily.

Although it might seem that the odds are overwhelming against success of such a major operative procedure in patients of the carcinoma age group, experience does not justify this pessimism. Results being obtained at the present time indicate that a patient with a primary carcinoma of the lung has a slightly better chance than has a patient with a carcinoma of the stomach which requires total gastrectomy for its removal.

In a recent survey Dr. Overholt was able to collect a total of thirty-five patients who are alive following total pneumonectomy. Of these, nineteen patients have been alive for more than two years. This does not include all living postoperative pneumonectomies, since Dr. Graham's cases are not included in this survey. It has been estimated that the postoperative mortality rate at the present time is probably somewhere in the neighborhood of 33 per cent.

The symptom which most frequently appears to lead the patient to consult his physician is cough which begins as an irritating, dry cough, persists and subsequently becomes productive of purulent material as infection develops behind the obstructing lesion. A history of a sense of discomfort or actual chest pain is elicited from approximately 40 per cent of the patients, and may result from atelectasis caused by a carcinoma in the main stem bronchus with bronchial obstruction. Intercostal neuralgia appears less frequently and is found in patients who have peripheral tumors which have invaded the chest wall. Severe chest pain is not an early symptom of carcinoma of the lung. Massive pulmonary hemorrhage is likewise a late symptom, although blood streaking of the sputum occurs early in about half of the patients. Other symptoms which occur infrequently and which cannot be depended upon for a diagnosis include dyspnea, wheezing, gastro-intestinal upsets, weight loss, and general weakness. The physical findings in the chest of the patient suffering from early malignancy are variable and may be completely absent. A small, non-obstructing tumor in the main stem bronchus or a peripheral tumor not ex-

tending to the thoracic wall may produce no signs. When the growth obstructs a major bronchus and there is atelectasis the physical findings are those of atelectasis only. Infection secondary to the tumor may alter the physical findings considerably. Pleural effusion may occur and while not an absolute sign often indicates inoperability although Overholt reports one patient with pleural effusion who was found to be operable. If examination reveals evidence of involvement of the mediastinum, such as engorgement of the veins of the neck, phrenic paralysis or mediastinal glandular enlargement, the disease must be considered to be in its late stages. X-rays of the chest are, of course, essential in a suspected case of a primary carcinoma of the lung.

In general, the situation is parallel to that in patients suspected of having malignancy of the abdominal viscera. The patients must be considered surgical problems until the question of operability is settled, since this method of treatment offers the only possibility of cure. The interval of time between the first symptom and death is reported variously, as from five months to slightly under one year. Because of this relatively short time, it is essential that the decision regarding operability and the course of therapy to be followed be made at the very earliest possible moment. Since the physical findings are so variable that they cannot be depended upon, further diagnostic procedures must be undertaken to establish the diagnosis.

Although simple roentgenograms of the chest may offer valuable presumptive evidence, and although bronchography may be helpful, it is most desirable to confirm the diagnosis by obtaining tissue from the primary lesion. Three possibilities are available. Bronchoscopy should be done in every patient suspected of having a carcinoma of the bronchus, and tissue for biopsy can be obtained in about three-fourths of them. This is, therefore, the most valuable diagnostic procedure at our disposal. Examination of the sputum from malignant tissue has occasionally established a diagnosis where bronchoscopy failed to visualize the tumor. This is most likely to be positive evidence in the far advanced cases, and its value in early cases has not been definitely established. Aspiration and biopsy of lung carcinomas occasionally may be useful. Because of the frequency with which suppuration occurs behind obstructing neoplasms, the possibility of infecting the pleural space cannot be overlooked. Negative results following aspiration do not necessarily mean the absence of a neoplasm. As in abdominal malignancies, the patient should be given the benefit of the doubt before the case is declared to be inop-

erable. Positive evidence that the growth has extended beyond the field of operability should be obtained, if at all possible, before a decision is made to withhold operation.

Certain criteria for inoperability have been established. These include evidences obtained on bronchoscopic examination, such as frozen mediastinum, unless this fixation is due to previous disease, tracheal extension or implantation in the contralateral bronchus. Roentgen evidence of inoperability includes obvious bilateral widening of the mediastinal shadow, paralysis of the diaphragm which usually indicates mediastinal infiltration with involvement of the phrenic nerve, and evidence of metastases to bone. The discovery of distant metastases, as proved by biopsy of cervical glands or the demonstration of malignant cells in aspirated pleural effusions, is likewise definite evidence of inoperability. Occasional pleural metastases may be demonstrated by thoracoscopic examination.

A review of the hospital admissions during the ten years between January 1, 1930, and January 1, 1940, reveals exactly one hundred patients in whom a diagnosis of primary bronchiogenic carcinoma was made. All of these diagnoses were not confirmed and some were based on presumptive evidence. In this group of one hundred patients the average age at admission was fifty-two years, with 18 per cent being less than forty years of age; 37 per cent were less than fifty years of age. The males outnumbered the females about three to one. Although the average duration of symptoms on admission to the hospital was 8.8 months, several patients whose histories were unusually long are included, since it is difficult in some instances to be sure just when the symptoms referable to the neoplasm first appeared. Seventy-six per cent had symptoms of less than one year's duration; 45 per cent had symptoms of six months or less. In spite of this relatively short duration, it was determined as nearly as possible from examining the records that approximately only 20 per cent had an operable lesion on admission; that is to say, twenty patients of the one hundred might justifiably have been subjected to an exploratory thoracotomy. It is, of course, impossible to say how many of this group might have been found to have inoperable lesions as determined by an exploratory operation.

The average duration of life from the time the symptoms were first noted, in a group of thirty-seven patients where the diagnosis was confirmed by postmortem examination or biopsy, was seven months. This includes several proved cases whose total duration of life from the first symptoms was as short as one month. Approximately ten per

cent of these people entered the hospital and were admitted to the Neurological Service because their first symptom was related to metastases involving the nervous system. Although a great majority of the people included in this survey received roentgen therapy, there seems to be no reason to feel that they were improved.

We have no cured cases of carcinoma of the lung to our credit. Total pneumonectomy has been performed in this hospital four times. One patient survived for one year following the operation and died from recurrence. A second patient had an inoperable lesion, but pneumonectomy was performed as a palliative measure, and the patient survived the operation for approximately three weeks, the object of the operation having been accomplished. There were two operative deaths.

CARCINOMA OF THE ESOPHAGUS

VERNON W. PETERSEN, M.D., Iowa City

Due to the recent advances in the fields of anesthesia and thoracic surgery, reports of successful resections of the esophagus for carcinoma have appeared with increasing frequency during the past four or five years. Somewhere between fifteen and twenty patients so treated have been reported during this last interval. I wish at this time to emphasize that exploration to determine operability and resection, if possible, does not carry with it a prohibitive mortality rate. There is at our disposal at the present time a sound operative procedure, based on the present day conception for radical surgery for cancer, with a low operative mortality rate. It is necessary, of course, in order to achieve any degree of success that the diagnosis be made early since these tumors frequently reach an inoperable stage rapidly. It is advisable, therefore, that any deviation from the normal in the act of swallowing in a patient past thirty-five or forty years of age be investigated by an esophagoscopy examination. The diagnosis can then be confirmed by biopsy.

The operation may be carried out in either one of two ways, depending upon the site of the neoplasm. If the carcinoma is situated in the lower two inches of the esophagus a primary esophago-gastrostomy by the transpleural route can be done. If the neoplasm is situated in the upper two-thirds of the esophagus, the esophagus must be resected and the proximal end brought out through the neck and a subcutaneous transplant be done. As an illustration of the results that may be obtained, Dr. John Garlock of New York reports on seven patients who have been subjected to radical resec-

tion. Six patients survived the operation of whom four are alive and well at the present time.

In conclusion, may I reiterate the point I have tried to bring out in the discussion of these two conditions; namely, neoplasms involving the lungs or esophagus can now be considered in a fashion similar to neoplasms within the abdominal cavity. That is, unless they are obviously inoperable, the patient should be subjected to an exploratory operation with radical resection, if possible.

Discussion

Dr. W. M. Fowler: As Dr. Petersen has pointed out, the operative treatment for carcinoma of the lung and bronchus has passed the experimental stage and can now be classed definitely as the therapeutic procedure of choice in selected cases. It offers these patients the greatest, or really the only, chance of recovery. In order to take advantage of this surgical procedure the diagnosis must be made early, but unfortunately this is frequently difficult if not impossible. As Dr. Petersen has shown in his statistics many of these patients report to the physician not because of symptoms of the bronchial carcinoma but because of symptoms from metastatic lesions in the brain or elsewhere. Obviously this group has passed the stage of operability. If the carcinoma invades the lumen of the bronchus with the formation of an abscess, bronchiectasis or atelectasis, there will be symptoms and physical findings to call our attention to the lung. However, if the carcinoma grows into the interstitial tissue rather than the lumen there will be a minimum of symptoms and findings. Probably the earliest symptoms of carcinoma of the bronchus are cough and hemoptysis. When these are found in an older patient one must think immediately of this possibility and subject the patient to a thorough examination including roentgenologic studies, bronchography with a radio opaque substance and bronchoscopy. One must bear in mind, however, that about 10 to 18 per cent, in Dr. Petersen's series, of these carcinomas appear in patients between twenty and forty years of age so that the possibility of this lesion cannot be neglected in younger patients. I would like to stress particularly the frequency with which infection occurs below the point of obstruction. Because of this the patients often present themselves with a history of having had what was apparently an upper respiratory infection followed by persistent fever, cough and expectoration of abundant purulent sputum. With these symptoms one is too likely to consider that he is dealing with a simple purulent bronchitis and neglect the diagnostic procedures which would lead to a correct diagnosis.

Dr. H. P. Smith: When a tumor arises in the lung, the neoplastic cells often enter the pulmonary veins and are widely disseminated to various organs; hence it is that pulmonary neoplasms often metastasize to the brain. Neoplasms of the lung are of several types histologically. Some are glandular; others are of transitional cell or of epidermoid type. Some-

times the tumor is so highly undifferentiated as to resemble sarcoma. True sarcoma is rarely primary in the lung, however.

Dr. S. C. Cullen: The anesthetist has four functions in thoracic surgery. First, he must compensate for the disturbance in the dynamics of respiration occasioned by a wide open pneumothorax. Second, he must provide for adequate ventilation and oxygenation during a procedure in which the patient is usually placed on his good side and has a collapsed lung on the other side. Third, he must provide means of removing blood and other material from the bronchi and trachea. Fourth, he must provide suitable working conditions in the chest. Unless respiration is controlled, there is much movement of the mediastinum, diaphragm and lobes of the lung. Proper control of this by the anesthetist makes a quiet chest and a roomy one in which to work.

Dr. A. L. Sals: I wish to emphasize the importance of recognizing carcinoma of the bronchus in neurologic diagnosis. Patients who present a brain tumor syndrome should have a careful examination of the chest, the roentgenologic examination being of particular value, before a diagnosis of primary tumor of the brain is made. Some clinics routinely x-ray the chest in brain tumor cases, thereby reducing the number of unnecessary craniotomies.

Dr. C. Van Epps: Dr. Petersen has stated that of the 100 patients with bronchiogenic carcinoma in the university clinic, ten were admitted to the Neurological Service. In other words, the cerebral complaints, which were those of brain tumor, were the outstanding feature. In most of these cases there were no chest symptoms, so that the cerebral symptoms were anticipatory of the primary bronchial lesion. Even the x-ray examination of the chest may be negative. In one case, a young man in the thirties entered with a definite unilateral cerebellar syndrome; operation revealed a tumor of epidermoid origin. Three months later he returned for a check-up. At this time he admitted raising blood-streaked sputum and an x-ray of chest revealed the typical shadow of the bronchial tumor. Again, the chest plates may be negative and a bronchoscopic examination positive. To reduce as far as possible the overlooking of a bronchiogenic carcinoma as the real source of a brain tumor syndrome, routine x-ray plates should be made of the chest in such cases.

Dr. Peck: During the past year, I have had the opportunity to attend the clinics of Dr. Graham in St. Louis and Dr. Overholt in Boston. I was perfectly astounded when Dr. Graham claimed that only eight per cent of the cases of bronchiogenic carcinoma that came to his attention were operable, while Dr. Overholt's experience was about twelve per cent. I think such late diagnoses reflect discreditably upon our diagnostic ability. We admit to the State Sanatorium at Oakdale four or five patients each year who are sent in for pulmonary tuberculosis and are found to have carcinoma of the lung. That is simply because we are careless diagnosticians. The physician may not be able, in all cases,

to recognize lung carcinoma, but he should be able to exclude tuberculosis. We should not allow a man of Dr. Graham's standing and experience to admit that only one out of twelve cases of carcinoma of the lung that come to his clinic is operable. It is not good medicine.

THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

MELANOMA OF THE DURA

DONALD C. CONZETT, M.D., Dubuque, and
W.M. R. LANGFORD, M.D., Epworth

Until recently melanomas were usually thought to be of dermal origin. More recent studies strongly indicate that these malignant tumors are of nervous origin. It is well known that rarely they arise in the cerebral meninges, but as far as we have been able to discover, no case has been reported as arising in the dura of the spinal cord. The case to be presented is of interest because apparently the origin was in the spinal dura and no other point of origin was discovered in an intensive search both clinically and at the necropsy. However, because of restrictions, we were not permitted to open the skull and while clinically there was no evidence of involvement of the eyes or brain it is still possible that the site of origin may have been in the retina. The case is also of interest because of the gradual onset of symptoms which progressed steadily until there was complete paralysis below the site of the lesion.

CASE REPORT

Clinical History: The patient, a white woman fifty-seven years of age, was admitted to The Finley Hospital, November 3, 1937, because of "pain in the shoulders and chest, inability to walk and weakness of the left arm."

Family History: Negative.

Past History: The patient had had measles, mumps, pertussis, scarlet fever and typhoid fever in childhood. She had nine children all of whom were living and well. She had never had any menstrual disturbance and all pregnancies and deliveries were normal. The menopause occurred when she was forty-three years of age.

Present Illness: About five weeks before admission the patient began to have pains in the shoulders and about the chest. She noticed that her legs became weak. The symptoms increased rather rapidly and it became difficult for her to

walk about the house. During the four or five days before admission twitching of the legs had been painful and she had become very constipated.

Physical Examination: The patient was an obese white woman who laid quietly in bed and did not move the body or legs. The face was flushed and beads of perspiration were seen on the forehead. There was considerable hair on the chin. The pupils were equal in size and reacted normally to light and accommodation. The ears, mouth and nose appeared negative. The facial reflexes were normal. The neck was full, especially on the left side, but no masses could be felt. The head was moved with difficulty because of the weakness of the muscles. At the level of the fourth thoracic vertebra there was an area which was very tender on pressure. This extended under the left scapula and around the chest to the sternum. The chest was normal in contour. The breasts were large but no masses could be felt. The heart was normal in size and its rate and rhythm were normal, although the force was irregular. The lungs were negative to percussion and auscultation. The abdomen was obese, flabby and protuberant. There was definite tenderness in the gallbladder area but otherwise the abdomen was negative. The abdominal reflexes were absent and there was a definite girdle sensation. The tactile and pain senses were almost absent. The heat and cold senses were entirely absent. Each leg was fully extended and tests showed no reaction to pain, touch, heat, cold or position. The Babinski reflex was four plus on each side. The knee jerks were strongly exaggerated. The left arm was slightly affected and twitching of both legs and arms was pronounced and painful. Ankle clonus was three plus on each side; Kernig's sign was negative.

Laboratory Examination: The Wassermann test was negative. The white blood count was 8,200; the red blood count was 4,700,000; the hemoglobin was 80 per cent (Sahli) and the color index was .85. The differential count was polymorphonuclears, 69; small lymphocytes, 17; large lymphocytes, six; eosinophils, two; basophils, one; and monocytes, five. The urine was essentially negative although there was a faint trace of albumin.

Provisional Clinical Diagnosis: Acute transverse myelitis.

X-ray Examination: X-ray examination of the thoracic spine and pelvis showed a destructive process involving the posterior portions and lamina of the fourth and fifth dorsal vertebrae on the right side. The pedicles on the right were eroded. Lipiodol was injected into the subarachnoid space

of the lumbar spine, a partial obstruction and defect of the column of oil on the right was encountered on a level with the lower margin of the sixth dorsal vertebra, and a complete obstruction on a level with the lower margin of the fifth vertebra. The appearance was that of a destructive lesion of the posterior arch on the right, most probably due to a spinal cord tumor, probably extradural.



Fig. 1

The possibility of this being secondary to a distant malignant tumor was considered. The pelvis was negative.

Course in Hospital: In the hope of relieving the patient's symptoms, it was decided that laminectomy should be done. At operation a mass of dark material judged to be a melanotic sarcoma was encountered. This was confirmed by a frozen section. After operation the patient ran a septic temperature but seemed in fair condition for two days. On the third day there was evidence of pulmonary edema and of cerebral irritation. The patient died four days after operation. No source of the melanotic sarcoma was found on the exterior of the body in spite of a careful search.

Final Clinical Diagnosis: Melanotic sarcoma involving spinal vertebrae and cord.

Necropsy Abstract: Externally the body was that of a well developed and well nourished white woman with a sutured surgical incision from the third to the sixth dorsal vertebrae. A careful search of all parts of the skin showed nothing suggestive of a pigmented mole or nevus. The circulatory system was negative except for moderate

arteriosclerosis. The lungs were edematous and markedly congested especially in the dependent portions. Over the surface of each lung, coal black tumor nodules varying between two and seven millimeters in diameter were seen. (Figure 1.) A few similar metastases were seen over the visceral pleura adjacent to the first thoracic vertebra where a dark mass could be seen. The liver, spleen and kidneys were intensely congested. The gallbladder contained numerous faceted stones and the wall was moderately thickened. The intestines, anus, uterus and vagina were especially studied for pigmented areas, but none was found. The appearance of what was considered the primary neoplasm, which involved the dura and the fourth and fifth dorsal vertebrae, is shown in Figure 2. The cord was constricted adjacent to the tumor.

Anatomic Diagnosis:

Primary:

1. Melanoma of the spinal dura: extension to vertebrae; transverse myelitis; metastases to visceral and parietal pleura and diaphragm.

2. Operation: (laminectomy and biopsy); acute cardiac dilatation; acute congestion of all the viscera; pulmonary edema; hemorrhagic infarct of the right lung.

Subsidiary: Obesity; arteriosclerosis; chronic cholecystitis and cholelithiasis.



Fig. 2

DISCUSSION

Melanotic tumors have long been recognized, having been described in horses as early as 1784. According to Dvorak-Theobald,¹ Laennec first described this tumor in man. In the past, four origins have been assigned to melanomas: skin; endothelium; connective tissue and the tactile corpuscles of Wagner-Meissner. Since their occurrence was usually associated with pigmented moles or arose in pigmented tissue such as the retina, it was only natural that these were considered of primary etiologic importance. The exact nature of these cells was in doubt and the tumor was considered a sarcoma until 1926 when Masson² described cases and advanced the belief that both benign nevi and the melanomas were of nervous origin. Masson's belief has been generally accepted. As pointed out by Foot and Zeek³ this was the resurrection of an almost forgotten thesis promulgated by Soldan in 1899. Masson, nonetheless, is given credit for firmly establishing the origin of these tumors.

In our case we recognize the weakness of our position in dogmatically stating the origin as being in the spinal dura. We can only say that no other site of origin was determined either on careful physical examination or complete studies at the necropsy table within the limits previously mentioned. Plewes⁴ in an analysis of 41,984 specimens at Toronto found only 93 cases (0.2 per cent) of melanotic tumors. Of these only five per cent were listed as of unknown origin, whereas in 48 per cent the primary lesion was in the skin. In this connection Ball⁵ makes a significant statement in expressing his view that a history of rapid increase in the growth of a pigmented mole is more reliable evidence of malignant transformation than a negative histologic report.

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AMERICAN MEDICAL GOLFING ASSOCIATION
TOURNAMENT

The twenty-sixth annual tournament of the American Medical Golfing Association will be held at the Winged Foot Golf Club, Mamaroneck, New York, Monday, June 10, 1940. Some 250 of the members of the organization are expected to take part in the thirty-six hole competition. Hours for teeing off are from 7:00 a.m. to 2:00 p.m. The sixty prizes in the nine events will be distributed after the banquet at the club house at 7:00 p.m.

All male fellows of the American Medical Association are eligible and cordially invited to become members of the American Medical Golfing Association. Applications may be secured from the executive secretary, William Burns, 2020 Olds Tower, Lansing, Michigan. Participants in the tournament are required to present their home club handicap, signed by the club secretary, at the first tee on the day of play. No handicap over 30 is allowed. Only active fellows of the Association may compete for prizes, and no trophy is awarded to a fellow who is absent from the annual dinner.

JEFFERSON MEDICAL COLLEGE ALUMNI
DINNER

During the convention of the American Medical Association in New York City, June 10 to 14, 1940, the Jefferson Medical College Alumni Association will hold its Reunion Banquet on Wednesday, June 12th, at 7:00 o'clock P. M., at the Murray Hill Hotel on Park Avenue at 40th Street. Tickets are \$2.50 each.

Requests for reservations may be addressed to the undersigned at that hotel.

It is hoped that all those who can attend will make reservations in advance, but if that is not possible, provision will be made.

Thomas F. Duhigg, M.D.,
Chairman Dinner Committee.

MINUTES OF MEETINGS OF STATE SOCIETY
OFFICERS AND COMMITTEES

Meeting of the Board of Trustees

April 6, 1940

The Board of Trustees of the Iowa State Medical Society met in the central office in Des Moines Saturday morning, April 6, at nine o'clock with all members present. The minutes of the previous meeting were read and approved; bills were authorized; and expenses in connection with the annual meeting were discussed. The Board allowed the Polk County Medical Society \$250.00 for entertainment expense, and the Golfers' Association \$10.00 for a prize. It also voted to pay the travel expense of three delegates and the secretary to the American Medical Association meeting; approved changing the publication date of the Journal from the tenth to the first of the month; and had no objection to an announcement regarding smallpox in Iowa preceding the weekly radio broadcast. Meeting adjourned at eleven a.m.

A. M. A. Annual Session

New York

June 10-14, 1940

STATE DEPARTMENT OF HEALTH

John L. Diering

DATA FROM PNEUMONIA CASE REPORTS

During 1939 pneumonia cases totaling 1,344 were reported to the Iowa State Department of Health. Reports total 1,128 thus far in 1940 (through April 19). The marked improvement in the reporting of pneumonia is due in large measure to reports of sputum findings on pneumonia patients as notified to the Department from pneumonia typing stations.

The Pneumonia Case Report.

Following the receipt of a report card which mentions the name of the attending physician, pa-

tient, and the type of pneumococcus, a letter and pneumonia case report form are forwarded to the attending physician with request for more detailed information. The completed pneumonia case report contains information with reference to the patient's age, residence, date of onset of illness, symptoms, physical findings and factors predisposing to illness. The report further reveals whether management of the case includes the administration of sulfapyridine, of serum or the use in combination of sulfapyridine and serum. The report indicates also whether illness was followed by recovery, complications or death.

TABLE I
MORTALITY FROM PNEUMOCOCCUS PNEUMONIA IN IOWA, 1939-1940
Results with Sulfapyridine, Serum and Chemotherapy, based on 590 reports completed by attending physicians and forwarded to the Iowa State Department of Health

Types	Sulfapyridine Alone			Serum Alone			Combined Care Drug & Serum			Totals		
	Cases	Deaths	Mort. %	Cases	Deaths	Mort. %	Cases	Deaths	Mort. %	Cases	Deaths	Mort. %
I	39			40			138			217		
		3			2			6			11	
			7.69			5.00			4.35			5.07
II	21			10			47			78		
		2			1			3			6	
			9.52			10.00			6.38			7.69
III	25			11			42			78		
		1			5			6			12	
			4.00			45.45			14.29			15.38
IV to VIII	34			19			67			120		
		0			1			9			10	
			0.00			5.26			13.43			8.33
IX to XXXIII	48			13			36			97		
		3			3			4			10	
			6.25			23.08			11.11			10.31
Totals	167			93			330			590		
		9			12			28			49	
			5.39			12.90			8.48			8.30

Results with Sulfapyridine, Serum and Combined Therapy.

Study has been made of 590 case reports, for the most part covering the period from November, 1939, to April, 1940, with special reference to results attending chemotherapy, serotherapy and chemoserotherapy. The accompanying table (Table I) shows figures for cases, deaths, and case fatality rates or mortality per cent, arranged according to the kind of therapy and type of pneumococcus pneumonia. The series of 120 cases of pneumonia Types IV to VIII include the following: Type IV, 20 cases; Type V, 15 cases; Type VI, 25 cases; Type VII, 40 cases, and Type VIII, 20 cases. The series of 97 cases reporting pneumococcus pneumonia Types IX to XXXIII com-

idine alone (case fatality 7.7) or type-specific serum alone (case fatality 5.0).

Mortality due to Type II Pneumonia.

Figure 2 is based on 78 reports of cases of Type II pneumococcus pneumonia completed by attending physicians and returned to the State Department of Health. Again it is to be noted

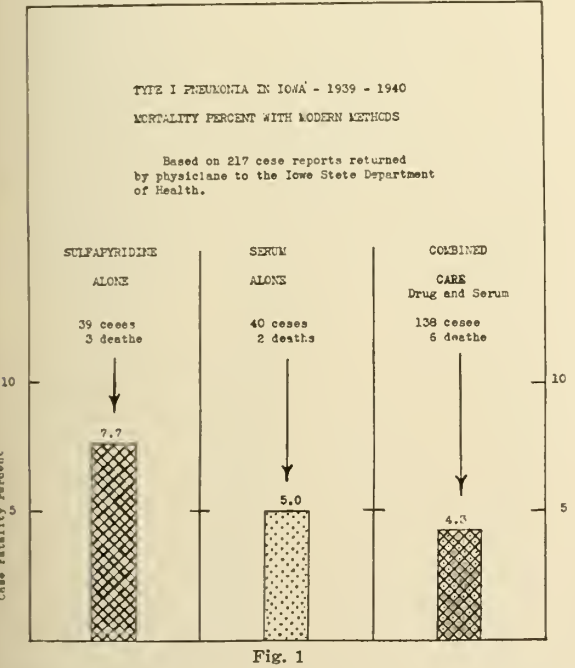


Fig. 1

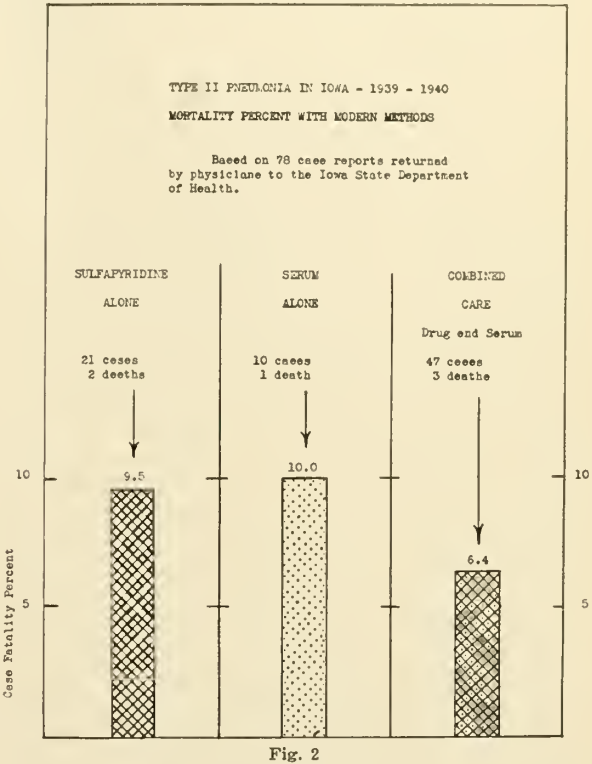


Fig. 2

that the patients who received both sulfapyridine and serum showed a lower mortality rate (6.4) than those who received sulfapyridine alone (case fatality 9.5).

prise the following: Type IX, ten cases; Type X, four cases; Type XI, five cases; Type XII, four cases; Type XIII, three cases; Type XIV, nine cases; Type XV, five cases; Type XVI, six cases; Type XVII, seven cases; Type XVIII, eight cases; Type XIX, eleven cases; and Types XX to XXXIII, twenty-five cases. As shown in Table I, total mortality rate in the series of 590 cases includes 49 deaths, or 8.3 per cent.

Mortality Due to Type I Pneumonia.

The accompanying graph (Figure 1) is based on 217 pneumonia case reports completed by Iowa physicians and returned to the State Department of Health. It will be noted that the group of 138 patients who received combined therapy (sulfapyridine and serum) showed a lower mortality percentage (4.3) than the group receiving sulfapyr-

PREVALENCE OF DISEASE

Disease	Most Cases Reported From		
	Mar. '40	Feb. '40	Mar. '39
Diphtheria	12	13	24
Scarlet Fever	271	303	650
Typhoid Fever	5	10	2
Smallpox	44	84	125
Measles	1074	695	815
Whooping Cough	37	37	52
Chickenpox	190	229	375
Influenza	74	223	2664
Meningitis (Epidemic)	0	3	1
Mumps	470	553	223
Pneumonia	305	436	289
Poliomyelitis	1	7	0
Tuberculosis (Pulmonary)	27	62	85
Tularemia	4	4	0
Undulant Fever	21	18	4
Gonorrhea	99	126	121
Syphilis	267	270	256

For the State

Polk, Scott, Linn, Buchanan

For the State

Muscatine, Polk

Lee, Des Moines, Poweshiek, Linn, Polk

Dubuque, Webster

Floyd, Linn, Black Hawk, Marshall, Woodbury

Cedar, Johnson, Audubon, Boone

For the State

Des Moines, CCC Camps, Linn, Webster

Polk, Webster, Dubuque, Greene

Wright

For the State

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THE SUMMER ROUND-UP OF THE CHILDREN

The National Congress of Parents and Teachers is an organization of some two and one-half million men and women which has as one of its most important activities the Summer Round-Up of the children of the nation. This health activity was inaugurated in 1925 "in the belief that the home is responsible for the health of the preschool child and that the home can make no greater contribution than to send to the school a pupil physically ready to take full advantage of the opportunities which education has to offer. The Summer Round-Up results not only in the correction of defects and immunization against communicable diseases, but also becomes a medium through which valuable instruction in child health is brought to parents."

The JOURNAL mentions this subject at this time because May is the month when the majority of Summer Round-Up campaigns are conducted. Furthermore, we feel that physicians, at least some physicians, have not fully understood the health program of this important lay organization. Too often it has been considered as just another "fool idea of a group of women" seeking some outlet, and one which imposes upon the physician's time and good nature. This conception is far from the truth which could readily be ascertained if one would investigate the subject.

Primarily the program is educational in that parents throughout the country are being taught the benefits to be derived from well conducted periodic health examinations. While the Summer Round-Up limits its sphere of activity to that group of children who will enter school in the fall, this is only one phase of the child health activities of the National Congress of Parents and Teachers. A further and important policy is to urge health examinations for children of all ages.

Another policy of the Parent-Teachers Congress, evolved as the result of past experience, which should meet with medical approval, is one which recommends that insofar as possible, examinations "be done in the office of the physician." Where this is not possible the clinic set-up should simulate that obtaining in the physician's office. Rapid physical inspection of partially clothed groups of children, passing before an examiner in lines, hardly merits the term "examination." Not only are such group examinations frequently a waste of everybody's time, but actually may in some instances be detrimental in the sense that parents are misled into a feeling of false security that their child has had "an examination."

A properly performed health appraisal of a well child can hardly be carried out in less than fifteen to twenty minutes. One or both parents or some person responsible for the child in its home should be present. An adequate health appraisal consists of more than a peek at the tonsils, a passing of the stethoscope over the chest and a squint at the posture. Certainly of equal importance with the physical status are the child's mental or social adjustments in the home, at school and among his playmates, his record of protective immunizations, and an inquiry to determine whether or not his nutritional needs are being met. The elicitation of information on these points requires that the parents be given an opportunity to tell their story as well as to be interrogated by the examiner. In the physical examination the child should be naked. Some one has said that "most missed diagnoses are missed not because the examiner didn't know enough, but because he didn't examine enough." Visual, hearing and orthopedic defects should be sought for in the health check-up. While the E and Snellen charts are admittedly crude methods of testing vision, their routine use may disclose many of the grosser defects; the child can then be referred to the ophthalmologist much sooner than might otherwise be the case.

Finally the individualized health examination in the physician's office with parents present, possesses an almost indispensable advantage over the group examination in this respect; the proportion of discovered defects which will be corrected depends to a large extent upon how convinced the parents are for the need of such correction. When we recognize the obvious truth that the health of the nation twenty and twenty-five years from now will depend on the children of today, it will at once be apparent that physicians are not fulfilling their responsibility to society in general unless they take an active part in worthwhile constructive health movements, such as the Summer Round-Up has proved itself to be.

INTRAMURAL POSTGRADUATE OBSTETRIC COURSE

The Department of Obstetrics and Gynecology of the State University Hospital, with the cooperation of the State Department of Health, is now offering short intramural postgraduate courses to the physicians of Iowa. The first session of one week was held early in February, and since that time seven individuals from various parts of the state have participated.

The work is designed for general practitioners who are particularly interested in obstetrics, and includes every opportunity to become familiar with the work of the department. The teaching is informal in character and has been planned to acquaint the physician-student with the medical and surgical technics involved in the modern practice of obstetrics and gynecology. Deliveries and operations are observed, daily ward rounds are made, diagnostic sessions are held and special discussions are conducted. The available clinical material always presents many cases of unusual interest which are discussed in detail. Every effort is made to keep the discussions practical. The following communication from a physician who has completed this short postgraduate course will be of interest.

"Having received several inquiries concerning this work from doctors in the first district, I believe it will be timely and of interest to all doctors in the state to obtain first hand information about these courses. To those uninformed on the subject it will be a revelation to know not only the quality but the quantity of work that is being so ably handled in these two divisions. To confine my impression entirely to first hand information, I will give you a brief synopsis of the actual work carried on from April 7 to April 14, 1940.

"1. The Obstetric Division. On April 7 there were 119 mothers and 65 infants. During the period up to April 14 there were 48 deliveries, which furnished ample material for demonstrating every method of delivery except cesarean section. Three methods of anesthesia for forceps deliveries were used, the caudal and local infiltration methods being of special interest to the doctor who so often finds himself short of assistants. The intravenous use of ergotrate, which shortens the third stage of labor by ten to fifteen minutes, is being tried at the present time, and certainly seems to be a splendid adjunct to our prevention of postpartum hemorrhage. Only one moderate hemorrhage occurred in the 48 cases I observed. Two ward rounds a day are made under a competent doctor and the course of the puerperium

is watched and followed closely until the final examination is made before the patient is dismissed from the hospital. The infant ward with its 67 babies was also visited at intervals and here, too, is ample material for demonstrating the proper care of the newborn infant. Nine premature babies were also being cared for under the latest and most approved methods.

"2. The Gynecologic Division. The census on this service was 31 patients. Twelve major operations were handled, including seven hysterectomies (three by the vaginal route), three Fothergill operations for uterine prolapse, three laparotomies for other conditions and three diagnostic curetages. The x-ray and pathology departments furnished valuable support to both the obstetric and gynecologic divisions. Two ward walks each day are also afforded in this division under the leadership of competent physicians. Opportunity for the study of radium therapy is also afforded.

"Summary. I feel that even one week's time properly applied in this department is of priceless value to the doctor interested in the field of obstetrics and gynecology. After noting the high quality of service rendered and the competent, systematic manner in which the whole set-up is carried out, I cannot emphasize too strongly that here at last is what the practicing physician of Iowa needs."

There is no tuition charge but the participants are required to maintain themselves. Rooms are available in local hotels and private homes at various rates. Meals may be obtained in the Doctors Dining Room at the Hospital, if so desired. White coats are furnished and laundered by the Hospital. Instructional periods extend from Sunday morning to the following Saturday afternoon. As a rule there are two such periods each month, according to a schedule prepared in advance to meet the convenience of the instructor who is directly in charge of the work. The schedule after July first has not yet been set, but there are three vacancies before that time, namely May 19 to 25 (two places available) and June 23 to 29 (one place available).

Physicians interested in taking the course should write directly to Dr. E. D. Plass, University Hospitals, Iowa City, for further information or for registration. Preference will be given to those under fifty years of age, who have been graduated between ten and twenty-five years. Registration for any time after July first will be accepted contingent upon final arrangements when the later schedule is developed.

HAZARDS OF THYROID PREPARATIONS

Thyroid preparations are an effective therapeutic weapon when administered discriminately under the close supervision of a physician. They have proved themselves of great value in cases of hypothyroidism, Frölich's syndrome, hypo-ovarianism and some types of endogenous obesity. If the medical supervision is adequate during the administration, the toxic manifestations of increased pulse rate, inward nervousness, tremor, frequency of urination, emotional instability and weakness will not appear. Any patient taking thyroid medication should have frequent basal metabolic rate determinations and cholesterol determinations, to prevent toxicity.

We think it is timely to remind our readers that various preparations of potent thyroid extract can be obtained by the laity, under the pretext that they will reduce excess weight effectively and harmlessly. These advertised preparations are popular among women who are disposed to adiposity. These people become self-convicted objects of a very potent and dangerous drug which may inflict permanent injury.

It can only be through constant efforts on the part of the medical profession to discourage the use of these drugs by the lay people that we can hope to stamp out a danger which is becoming increasingly prevalent.

MAY 1—CHILD HEALTH DAY

In 1928 both houses of the Congress of the United States passed a resolution directing the President each year to designate May 1 as Child Health Day. Such a proclamation has been issued for 1940. It is important to understand the full significance of this proclamation. The purpose is not merely to set aside the one day, May 1, for special attention to problems related to child health, but rather to designate this day as the starting signal for the renewal and intensification of all the movements concerned with the health of children living in a democracy. It is the intention to stimulate each community to examine anew the existing facilities and services it has to offer for the safety and protection of its future citizens, and where such facilities and services are found wanting, to inaugurate the necessary procedures for their establishment.

The JOURNAL is indeed happy to call this message to the attention of its readers, and to urge that it be taken to heart in our own state. While it is undoubtedly true that, compared to the rest of the country, Iowa children as a whole enjoy advantages denied those in less favored areas, nevertheless there exist many great and serious prob-

lems which could and should be receiving more thought than is given them. As a first step in line with the purposes of Child Health Day one could wish that a survey by a qualified group might be undertaken to determine the needs of our children and the present status of facilities, or lack of them, to meet these needs. Desirable as such a course would seem to be, the fact remains that the possibility of its being carried out is remote indeed. However, we can meet the challenge of this May Day proclamation. Each community (and who is better qualified to be the instigator than the community's physician) may examine its own needs and resources, and unite in a resolve to improve the health, safety and happiness of its children-citizens. Thus would the purposes of Child Health Day be served in the American way.

AMMONIUM BICARBONATE EFFECTIVE IN HEALING WOUNDS

The introduction of sterile maggots in the treatment of stubborn wounds by Baer in 1931 was a novel and startling mode of therapy. By this method wounds were cleansed, necrotic tissue was removed and healing promoted, but the difficulties involved caused its abandonment.

Dr. Robinson of the Bureau of Entomology and Plant Quarantine continued investigations of the manner in which maggots promoted healing. In 1935 he found that allantoin, which is present in the maggot secretions, stimulated healing similar to the action of maggots. In 1936 it was found that urea was present in maggot secretions and acted in a manner similar to allantoin. In continued study of the problem Dr. Robinson* has found that maggots excrete relatively large quantities of ammonium bicarbonate, which is formed by the action of the enzyme urease on urea, and this chemical stimulates healing as do the maggots themselves. The author first employed ammonium bicarbonate in the treatment of wounds on laboratory animals, and in cooperation with physicians the drug has been used in a wide variety of infected wounds. One pound bottles of ammonium bicarbonate may be purchased for forty cents. A stock solution is made by adding ten grams of the bicarbonate to 1,000 cubic centimeters of cold water. It is used in one-half to two per cent solution as wet dressings or irrigations.

Thus studies on the excreta of maggots have revealed the method by which healing of wounds is promoted, and have resulted in the discovery of an inexpensive drug which is as effective as the original costly and complicated procedure.

*Robinson, William: Ammonium bicarbonate secreted by surgical maggots stimulates healing in purulent wounds. *Am. Jour. Surg.*, xlvii:111-115 (January) 1940.

Polyps of the Large Intestine*

JAMES E. KAHLER, M.D., Des Moines
Pathologist, Iowa Methodist Hospital

Urologists the world over have learned to respect papillomas of the bladder and to question whether such a lesion as a benign papilloma exists. It might be a great deal safer to adopt such an attitude toward polyps of the large intestine. In this respect, the term polyps should be restricted to mean adenomatous proliferations and should exclude protrusions into the lumen of the bowel produced by benign tumors such as myomas, fibromas, lipomas, angiomas and by enlarged solitary lymph follicle and exaggerated papillae.

The nomenclature in polyposis of the colon is complex. Polyps are spoken of as being solitary or diffuse. The solitary polyp may occur as a single lesion or there may be several solitary polyps separated by varying lengths of normal mucosa in the same individual. Diffuse polyposis may occur in a disseminated form in which the entire mucous membrane of the colon is replaced by these growths with no normal mucosa intervening (polypoidosis), or innumerable polyps may be separated from each other by small strips of normal mucosa. Diffuse polyposis also includes those cases in which a group or collection of polyps occurs in one or more separated portions of the bowel. In addition there are pseudopolyps which are definitely inflammatory in origin.

Etiologically, a large number of polyps have a clearly traceable hereditary origin. Another large number occur as a result of inflammation of the bowel, forming on the edges of ulcers in chronic ulcerative colitis, dysentery, tuberculosis, etc. For the remainder a satisfactory explanation has not been presented, although constipation and bacterial and mechanical irritation have been advanced as causes.

A clear distinction was formerly drawn between primarily adenomatous polyps and the secondary or pseudopolyps, the latter resulting from inflammation. Such a distinction was important as long as it could not be shown that adenomatous polyps resulted from inflammation of the bowel and that inflammatory polyps did not undergo malignant change. It is known, however, that polyposis occurs in ten per cent of cases of chronic ulcerative colitis. It has been demonstrated that malignancy develops in 2.5 per cent of all cases of

chronic ulcerative colitis, and that polyposis is associated with 60 per cent of these cases. It is also known that adenomatous polyps occur in chronic ulcerative colitis; in 56 per cent of the cases the polyps were purely pseudopolyps, 22 per cent were adenomatous in type and 22 per cent were definitely malignant. Pseudopolyps arise from the overhanging strip of mucosa at the edge of an inflammatory ulcer by the contraction of scar tissue and the traction of peristalsis. They are composed of a fibrous stalk infiltrated by lymphocytes and plasma cells and covered by mucous glands resembling those of the adjacent mucosa. True adenomatous polyps are similarly composed of a stalk of fibrous tissue covered by glandular epithelium. In the most benign polyps, this fibrous stalk is well developed, long and narrow and is covered by a uniform layer of high columnar goblet cells arranged in glands which can scarcely be distinguished from normal mucosa. These polyps may vary in size from a few millimeters to three centimeters, are usually solitary and remain benign for long periods of time. A second variety is characterized by less well developed stroma which follows the hyperplastic epithelium in tree-like branches often forming lesions of considerable size. The epithelium for the most part is regular in arrangement, but small areas occur in which the cells are less well differentiated and tend to crowd together forming irregularly shaped alveoli which extend into the underlying stroma. These polyps have definite malignant tendencies. In a third group the stroma is poorly developed. The epithelium is disorderly in arrangement from the outset and the polyps do not reach a large size before malignancy is evident.

Polyps may be sessile or pedunculated. The pedunculated type is more common. Both types may occur in the same individual. Polyps appear at all ages from infancy to senility. They are found in males two or three times as frequently as in females. Single or multiple solitary polyps are the most common type and have their greatest incidence after forty years of age. They are most common in the rectum (58 per cent) and sigmoid (13 per cent). Diffuse polyposis of the localized type is also most frequently seen in the rectum and sigmoid, occurring here eight

*Editor's Note: This editorial has been prepared upon request. Other articles on the pathology of various disease processes will be found in previous issues.

times more frequently than in the remainder of the colon. Generalized polyposis involves the entire colon except in rare instances where the rectum is free. Diffuse polyposis usually appears earlier than the solitary type; its greatest period of incidence is before forty years of age. Disseminated polyposis, although rare, is always fatal unless treated although the duration of the disease may unaccountably be spread over a considerable period (two to twenty years). Death is due to exhaustion or malignancy. In a high proportion of solitary polyposis of the lower colon and rectum there are unrecognized polyps higher in the colon. In one series of cases of polyposis of the rectum, 57 per cent of the patients had in addition polyposis of the pelvic colon and in 14 per cent the entire colon was involved.

In all of true polyposis at least 50 per cent finally undergo carcinomatous degeneration. Several polyps may become malignant at the same time. Malignant polyps are occasionally found in the neighborhood of a large carcinoma. Polyps tend to reform in areas of colon from which a solitary tumor has previously been removed. A polyp may exhibit its malignancy not only at its tip or along its exposed surface but at the base of some crypt and also at its stalk, so that the whole of a polyp should be examined for evidence of malignancy. When the polyps are multiple not only should the largest polyps be examined microscopically but, because the process of polyposis has a progressively malignant tendency, portions or the whole of all small polyps should be examined since there is a likelihood that while the large older polyps may still be histologically benign the small newer growths may already be malignant. Thus until serial sections of all the polyps of a single patient can be made, a practical laboratory procedure biopsy is of prognostic value only when a positive diagnosis of malignant change is made. The greater the number of polyps present the greater the likelihood of malignant change. The broader the base of a polyp the greater is the chance of malignancy in that polyp. The presence of ulceration is in favor of malignancy but its absence does not prove benignancy.

Continued study of intestinal polyposis has shown that all polyps are malignant or potentially malignant and that all should be destroyed or removed. It has further demonstrated that the presence of one polyp necessitates careful and repeated examinations for additional polyps higher in the colon and careful watch throughout the life of the patient for the formation of additional polyps in an area which has once been the site of this lesion.

RED CROSS TO ENROLL MEDICAL TECHNOLOGISTS FOR MILITARY RESERVE

Chairman Norman H. Davis of the American Red Cross recently announced that at the request of the surgeon general of the Army and in compliance with its policy of cooperation with both the Army and Navy, the Red Cross, as an expansion of its peace-time service for the military forces has undertaken the enrollment of various types of medical technologists who are willing to serve in the medical departments of the Army and Navy if and when their services are required at the time of a national emergency. The plan has been under consideration for almost a year, according to Chairman Davis, and has no relation to the present situation in Europe.

The enrollment now being inaugurated will be similar to that of the nurses reserve which the Red Cross has maintained for the Army and Navy since 1911, and which is now being expanded to include properly qualified male nurses, and also the reserve of dietitians which has been maintained since 1917. Enrollment will include:

- Chemical Laboratory Technicians (male only)
- Dental Hygienists
- Dental Mechanics (male only)
- Dietitians
- Laboratory Technicians
- Meat and Dairy Hygienists (Inspectors, male only)
- *Nurses (male only)
- Occupational Therapy Aides
- Orthopedic Mechanics (male only)
- Pharmacists
- Physical Therapy Technicians (Aides)
- Statistical Clerks
- X-Ray Technicians

The Red Cross will work through the various associations and agencies of which these technologists are members, giving to them the details of the plan, including requirements prescribed for enrollment. In the event of national emergency, the enrolled male technologists who meet the required physical standards will be eligible for enlistment in the Army as non-commissioned officers and in the Naval Reserve as petty officers.

The Navy has indicated that notwithstanding the enrollment with the Red Cross of male technologists eligible for enlistment in the Naval Reserve in emergency, it is desired that in peace time, qualified personnel actually enlist in the U. S. Naval Reserve. The Navy does not require dietitians, occupational therapy aides, orthopedic mechanics or meat and dairy hygienists (inspectors) but all other technologists who may be interested in enlistment in the Naval Reserve may communicate with their Naval District Commandant.

Medical technologists belonging to the groups listed above may secure full information by writing the National Headquarters, American Red Cross, Washington, D. C.

* This group will not be members of the Army or Navy Nurse Corps which under basic law is limited to females, but will be used as technologists for service auxiliary thereto.

SPEAKERS BUREAU ACTIVITIES

FALL PROGRAMS

The fall schedules of postgraduate course lectures for the Marshall County Medical Society and the Boone and Story County Medical Societies have been completed. They are as follows:

MARSHALLTOWN

Hotel Tallcorn

6:00 p.m.

- Oct. 8 Diseases of the Heart—Diagnosis and Treatment.

Hugh McCulloch, M.D., Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis, Missouri.

- Nov. 5 Arthritis and Its Treatment.

Morris J. Shapiro, M.D., Assistant Professor of Medicine, University of Minnesota, Minneapolis, Minnesota.

- Dec. 3 Vitamin Deficiency—Symptoms and Treatment.

Clifford J. Barborka, M.D., Chicago, Illinois.

BOONE-AMES

Boone: Hotel Holst, 6:30 p.m.

Ames: Sheldon-Munn Hotel, 6:30 p.m.

- Sept. 26 The Acute Abdomen.

Arnold S. Jackson, M.D., Jackson Clinic, Madison, Wisconsin.

- Oct. 23 Differential Diagnosis and Treatment of Cataract and Glaucoma.

C. S. O'Brien, M.D., Professor of Ophthalmology, College of Medicine, State University of Iowa, Iowa City, Iowa.

- Nov. 6 Arthritis and Its Treatment.

Morris J. Shapiro, M.D., Assistant Professor of Medicine, University of Minnesota, Minneapolis, Minnesota.

- Dec. 4 Diagnosis and Treatment of Some Diseases of the Blood and Blood Forming Organs.

Raphael Isaacs, M.D., Associate Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

ROUND TABLE DISCUSSIONS

The Speakers Bureau was pleased to schedule five round table discussions on "Prematurity From the Obstetric and Pediatric Standpoint" during the month of April. Those counties which enjoyed the opportunities this type of program affords were Winneshiek, Delaware, Appanoose, Union and Wright. Dr. E. D. Plass and Dr. P. C. Jeans of the faculty of the college of medicine at the State University of Iowa conducted the programs in Decorah and Manchester. Dr. Addison W. Brown and Dr. Arnold M. Smythe of Des Moines appeared in Centerville, Creston and Eagle Grove. They will also conduct the round table meeting which the Floyd County Medical Society will hold in Charles City, Tuesday, May 28, at the Cedar Valley Hospital at 8 p.m. Thus far fifteen round table meetings have been scheduled throughout the state, and the Speakers Bureau has received nothing but complimentary reactions to this new type of instruction. Every group which has been host to the program has been especially enthusiastic in its praise of it, and numerous requests have already been received for similar discussions in the future.

THE HEALTH ESSAY CONTEST

More than 350 essays were submitted by boys and girls in Iowa's schools during the annual Health Essay Contest, sponsored jointly by the Woman's Auxiliary to the Iowa State Medical Society and the Speakers Bureau. We feel that this large number of essays represents an increased interest on the part of school children in the subject of health. First place was awarded Mildred Royer of Argyle, second place to Robert M. Smith of Viola, and third place to Irene Heltibridge of Grundy Center.

Final judges of the contest were Dr. Walter L. Bierring, Des Moines, of the State Department of Health; Mrs. S. E. Lincoln of Des Moines and Mrs. W. A. Seidler of Jamaica, of the Woman's Auxiliary; Dr. Joseph B. Priestley, Des Moines, of the Speakers Bureau; and Miss Jessie Parker, Des Moines, of the Iowa State Department of Public Instruction.

RADIO SCHEDULE

WSUI—Tuesdays at 4:00 p.m.

WOI—Wednesdays at 3:45 p.m.

- May 7-8 Stomach Ache

Daniel W. Coughlan, M.D.

- May 14-15 Old Age

Edward W. Anderson, M.D.

- May 21-22 Allergy

Herman J. Smith, M.D.

- May 28-29 Digestion

Donald C. Koser, M.D.

WOMAN'S AUXILIARY NEWS

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The Health Essay Contest

Results of the 1940 Health Essay Contest sponsored by the Woman's Auxiliary and the Speakers Bureau of the Iowa State Medical Society have been announced as follows: first place, Mildred Royer of Argyle; second place, Robert M. Smith of Viola; and third place, Irene Heltibridle of Grundy Center. Honorable mention was given the following boys and girls who also submitted excellent essays: Leora Bellmer of Dunkerton; Edna Carstensen of Linn Grove; Jack Pogue of Elliott; Dan Phalen of Mason City (St. Joseph's); Rita Loebig of Britt; Alice Miller of Bellevue (St. Joseph's); Mary Alice Becker of Atlantic; Carol Ruth Cheney of Bellevue; Lucille Wolleson of Odebolt; and Lois Birkner of Creston.

Final judges of the contest were Dr. Walter L. Bierring, Des Moines, of the State Department of Health; Mrs. S. E. Lincoln of Des Moines and Mrs. W. A. Seidler of Jamaica, of the Woman's Auxiliary to the Iowa State Medical Society; Dr. Joseph B. Priestley, Des Moines, of the Iowa State Medical Society; and Miss Jessie Parker, Des Moines, of the Iowa State Department of Public Instruction.

The winning essay by Mildred Royer was presented by the winner over Radio Station WOI in Ames on Wednesday, April 17. We feel that our members will be interested in reading this article, and are herewith printing it.

The Road to Health

Mildred Royer, Argyle, Iowa

We believe we are safe in the assumption that "Good Health" is one of the most valuable possessions that can be bestowed on a race, a class, a family, or an individual. Good health is to a person or a people, like unto a solid foundation on which to erect a mighty building. It is the foundation necessary to the development of many valuable traits, habits, and accomplishments of the individual, and is certainly a vital necessity if one is to enjoy the fruits of endeavor and the activities and social contacts of a well ordered life.

Good health in the fullest sense means much more than mere freedom from pain, or absence of serious disease. It means more than mere normal functioning of the organs of the body, important as these may be to the maintenance of good health. Your

horse or dog, if well cared for, competes successfully with you on that level; but he who would possess good health in the best sense of that term must add to the physical elements the mental and spiritual health, practices which reflect themselves in clear thinking, sane emotional controls, clear cut distinctions between rights and wrongs, and a cheerful wholesome outlook on life.

This kind of attitude persistently and intelligently followed during the years of childhood and early adulthood cannot fail to have a beneficial effect on the health of the individual in the threefold development of a healthy body, a healthy mind and a healthy moral and spiritual life.

Whether a "healthy body" is necessary to the development of a "healthy mind," or vice versa, we leave to the consideration of those who love controversy. That the two, a healthy mind and body, work well together, we submit as an established fact; and that physical and mental health may be possessed by most of us if we are willing to pay the price, we believe also to be a fact.

And what, may we ask, is the price for this splendid attribute? Is it self-denial of things necessary and beneficial? Not at all; rather it is the avoidance of the unnatural and unwholesome in life. The price asked is the exertion of our will-power against unclean, morbid and gloomy thoughts. The determination and redetermination, as often as we fail, against brooding over wrongs, both fancied and real; against hot anger and desire for revenge; against self-pity, envy, jealousy and hate.

Most of these emotions if indulged in, are decidedly harmful, and if petted and cultivated, will destroy mental health as certainly as cancer eats away the physical body. On the material side, the laws of health are just as definite and unrelenting. The use of needless drugs works a definite harm that levies and collects its price without fail. At the head of the list of useless drugs stand alcohol and tobacco, two great health hazards because of their almost universal use. Even the very moderate use of them has a depressing effect on both physical and mental health.

The World War taught us many things and uncovered many shortcomings that needed attention in

our national civil life. Not the least of these was the mass of facts assembled concerning our public health and the need for widespread, systematic and intelligent action to correct some of its worst faults. This resulted in federal and state participation in health education on a national basis and the placing of scientific information in the hands of everyone interested in furthering the cause of good health. This material gives us correct procedures regarding public and personal hygiene, causes of many contagious diseases, methods of control or prevention, many details regarding the care of our own bodies, information dealing with problems of "common colds", accidents, first aid, burns, poisons and most of the hazards of daily life. Among other agencies, our public schools have been enlisted in the cause for systematic education of the young citizenry of our nation in this matter of acquiring good health and good health habits. The physical education departments of the schools supply an almost ideal environment for the teaching and practices of this phase of the pupil's education. If the work be well done here, it would seem that much of it should carry over into the after-school life of the individual, with resultant benefits in better coordinated nerve and muscle systems, controlled by better trained minds, able to meet more efficiently the ever-changing conditions of daily life.

Going from the individual to the group, we discover that national health is an important factor in national security; that national good health is a necessary asset to national military protection. National health has a direct bearing on national peace and prosperity; and since national health is merely a sum total of individual health in any country, we find resting upon us a patriotic duty as well as a personal one in the matter of acquiring and maintaining good health.

The road to health is well marked, for most of us, with ample material which we may liken to great signboards warning us regarding proper care of teeth, eyes, hearing, and instruction concerning diet, exercise and rest; other signs urge the value of physical examinations, at least annually, by a competent physician; and others give technical information concerning bacteria, infections, sterilization and first aid. Epidemics are explained and methods of control or avoidance are discussed for us. Sanitation is made a vital living science. Booklets are available with all essential information concerning correct care of our bodies, correct diets for growth, for physical development, exercises for corrective purposes, for strengthening muscles and sinews, correct posture exercises for both appearance and health, inspirational materials to stimulate correct mental "health habits". In addition to all this constructive material which guides us along our journey on the "Road to Health", we see about us much impressive material exemplified by those who have violated many of the warnings and explanations displayed, and are paying the penalty imposed by Nature's laws—the laws no man may repeal.

Dubuque County

The Woman's Auxiliary to the Dubuque County Medical Society sponsored a speaker for the University Department of the Dubuque Women's Club on Tuesday, April 9. We were fortunate in securing Dr. John I. Marker of Davenport, whose topic was "Mental Health".

The members of the auxiliary had dinner at the Julien Dubuque Hotel, and invited their husbands to be their guests. Dr. and Mrs. Marker, and Dr. and Mrs. Hanske of Bellevue, were special guests of the occasion. After the dinner the auxiliary members adjourned to the Women's Club to hear Dr. Marker, and the doctors held their own regular medical meeting.

Dr. Marker's talk was very interesting and instructive, as were talks by two local speakers connected with social service work in Dubuque. After the meeting members of the Women's Club served light refreshments.

Mrs. R. R. Harris, Secretary.

Polk County

Maternal and child health was the theme of the final spring meeting of the Woman's Auxiliary to the Polk County Medical Society held Tuesday, April 2, at the Hotel Kirkwood in Des Moines. Mrs. Wilbert W. Bond, president of the Iowa Maternal Health League, gave a talk on "Why Let Them Die?", illustrated by sound motion pictures. Mrs. Nina Renquist sang several selections, accompanied by Mrs. N. L. Miles. Mrs. Walter L. Bierring reviewed an article by Rock Sleyster, M.D., on "The Doctor's Wife."

A luncheon and business meeting preceded the program. The Hospitality Committee for the meeting included Mesdames A. C. Page, E. B. Winnett, H. I. McPherrin, J. R. Auner, H. J. McCoy, F. W. Rice and C. H. Carryer.

Pottawattamie County

Committees for the year were appointed Wednesday, March 27, when the Woman's Auxiliary to the Pottawattamie County Medical Society convened for luncheon and the monthly meeting at the home of Mrs. Gordon N. Best in Council Bluffs. Miss June Dickason and Miss Maxine Hansen presented vocal and piano numbers during the program.

The following committee appointments of the president, Mrs. A. A. Robertson, were approved: Mrs. M. C. Hennessy, chairman of the program committee; Mrs. E. L. Hawkins, chairman of the telephone and reservations committee; Mrs. S. D. Maiden, chairman of the public relations committee; Mrs. Fred Beaumont, chairman of press and publicity committee; Mrs. Arthur Brown, chairman of courtesy committee; and Mrs. I. Sternhill, chairman of *Hygeia* committee. Mrs. Robertson, Mrs. J. L. Stech and Mrs. Sternhill were selected as delegates to the state convention in Des Moines, with Mrs. F. E. Bellinger and Mrs. H. B. Moorehead of Underwood, as delegates.

SOCIETY PROCEEDINGS

Boone-Story Society

Members of the Boone and Story County Medical Societies convened Thursday, March 28, at the Sheldon-Munn Hotel in Ames, for their regular monthly meeting. Guest speaker of the occasion was Thomas G. Orr, M.D., of Kansas City, who spoke on Intestinal Obstruction.

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital, was held at the Fortner Hotel in Waverly, Monday, April 22. W. D. Paul, M.D., of the State University of Iowa, College of Medicine, Iowa City, spoke on Recent Advances in Hypertension.

P. K. Graening, M.D., Secretary

Cass County

Ruben Nomland, M.D., professor of dermatology and syphilology, State University of Iowa, College of Medicine, Iowa City, addressed members of the Cass County Medical Society in Atlantic, Friday, March 29, on Common Skin Diseases.

Cedar County

Dr. J. E. Christiansen of Durant was elected president of the Cedar County Medical Society at the annual meeting of that organization held in Tipton, Monday, April 8. Dr. M. L. Mosher, Jr., of West Branch, was named secretary and treasurer. Following the business meeting a motion picture film on the Treatment of Pneumonia was shown through the courtesy of the State Department of Health, Des Moines.

E. J. Van Metre, M.D., Secretary

Cerro Gordo County

The Cerro Gordo County Medical Society met in regular session Tuesday, April 9, at the Hotel Hanford in Mason City. The scientific program was furnished by Arild E. Hansen, M.D., acting head of the department of pediatrics, University of Minnesota Medical School, Minneapolis, speaking on Rheumatic Fever. During the business meeting the society voted to accept the plan of the Hospital Service, Incorporated, of Iowa.

J. E. Houlahan, M.D., Secretary

Dallas-Guthrie Society

The regular meeting of the Dallas-Guthrie Medical Society was held at the Presbyterian Church in Panora, Thursday, April 18. After the twelve-thirty

luncheon, the following program was presented: Pneumonia; Treatment with Specific Serum and Sulfapyridine, Keith M. Chapler, M.D., and C. R. Osborne, M.D., both of Dexter; and Typing Pneumonia, a motion picture film presented by the State Department of Health, Des Moines.

S. J. Brown, M.D., Secretary

Greene County

James W. Young, M.D., of Des Moines, lectured and conducted a clinic on Dermatology at the regular monthly meeting of the Greene County Medical Society held at the Greene County Hospital in Jefferson, Thursday, April 11.

J. R. Black, M.D., Secretary

Hardin County

The Hardin County Medical Society met Thursday, April 25, at the Stevens Hotel in Iowa Falls, at which time Joseph B. Priestley, M.D., of Des Moines, spoke to the group on Non-Surgical Management of Gallbladder Disease.

W. E. Marsh, M.D., Secretary

Johnson County

The Physiology and Clinical Significance of Lipocaeic was discussed by Lester R. Dragstedt, M.D., of Chicago, at the regular meeting of the Johnson County Medical Society, held Wednesday, April 3, at the Hotel Jefferson in Iowa City.

R. J. Prentiss, M.D., Secretary

Lee County

The Lee County Medical Society held its regular meeting at the Lincoln Hotel in Fort Madison, Thursday, March 28. An excellent afternoon program was presented as follows by members of the faculty of the College of Medicine, State University of Iowa: The Injection Therapy of Varicose Veins, Vernon W. Petersen, M.D.; Ovarian Tumors, John H. Randall, M.D.; and Recent Advances in Hypertension, William D. Paul, M.D. Following the six-thirty dinner, a motion picture film on the Treatment of Pneumonia was shown through the courtesy of the State Department of Health, Des Moines.

H. F. Noble, M.D., Secretary

Madison County

The scientific program for the Madison County Medical Society meeting held Monday, April 15, consisted of a motion picture film on the Treatment of Pneumonia, presented by the State Department of Health, Des Moines.

Evelyn M. Olson, M.D., Secretary

Marion County

The Marion County Medical Society met in regular session Thursday, April 18, at the Masonic Hall in Pleasantville, and viewed the new motion picture film on the Treatment of Pneumonia furnished by the State Department of Health, Des Moines.

C. I. Fox, M.D., President

Marshall County

Stuart C. Cullen, M.D., of Iowa City, spoke on Local and General Anesthesia in Obstetrics and Major Surgery, for members of the Marshall County Medical Society when the group met Tuesday, April 2, at the Hotel Tallcorn in Marshalltown.

Monona County

Two physicians from Council Bluffs furnished the scientific program for the Monona County Medical Society at the regular meeting held Thursday, April 4, at the Rivera Hotel in Onawa. Jack V. Treynor, M.D., and Robert M. Collins, M.D., conducted a round table discussion on Prematurity from an Obstetric and Pediatric Standpoint.

Sac County

The monthly meeting of the Sac County Medical Society was held at the Park Hotel in Sac City, Thursday, March 28. Following the six-thirty dinner a six reel film, furnished by the General Electric X-Ray Corporation, entitled The Mechanism of the Heart in Health and Disease, was presented to the members. The film was devoted to the electrocardiographic changes present in the heart under conditions of health and disease. John C. Shrader, M.D., of Fort Dodge, led the discussion and commented on the subject of electrocardiography.

Wayland K. Hicks, M.D., of Sioux City, was entertained by the Society on Thursday, April 25, when he addressed the organization on Common Urologic Disorders and Recent Advances in Their Management.

H. N. Neu, M.D., Secretary

Scott County

The April meeting of the Scott County Medical Society was held at the Lend-A-Hand Club in Davenport, Tuesday, April 2, with Frank R. Peterson, M.D., professor of surgery, State University of Iowa, College of Medicine, Iowa City, as guest speaker. Dr. Peterson's address was entitled A Discussion of Fractures.

P. E. Gibson, M.D., Secretary

Wapello County

The last regular meeting of the Wapello County Medical Society before the summer recess was held in Ottumwa, Tuesday, April 16. After the six-thirty dinner Friedrich Wilhelm Niehaus, M.D., professor of medicine, University of Nebraska, College of Medicine, Omaha, presented an address on Coronary Disease.

Wayne County

The Wayne County Medical Society met Tuesday, April 16, at the Corydon Hospital in Corydon. The program consisted of a film on the Treatment of Pneumonia, presented by the State Department of Health, Des Moines.

C. F. Brubaker, M.D., Secretary

Woodbury County

Willard O. Thompson, M.D., associate professor of medicine, Northwestern University Medical School, Chicago, was guest speaker for the Woodbury County Medical Society at a meeting held Thursday, April 11, at the Martin Hotel in Sioux City. Dr. Thompson spoke on Treatment of Hypogonadism; Pertinent to Endocrinology.

A. Q. Johnson, M.D., Secretary

Iowa and Illinois Central District Medical Association

The annual meeting of the Iowa and Illinois Central District Medical Association will be held Thursday, May 16, at the Outing Club in Davenport, Iowa.

The program will begin at 3:00 p.m. with August A. Werner, M.D., assistant professor of internal medicine, St. Louis University School of Medicine, delivering an address on The Anterior Pituitary Gonad Relationship in the Female. At 4:00 p.m. John J. Shea, M.D., head of the John J. Shea Clinic of Memphis, Tennessee, will speak on The Management of Tonsil and Adenoid Surgery. At 5:00 p.m. Italo F. Volini, M.D., professor and head of the department at Loyola University School of Medicine, Chicago, Illinois, will deliver an address on A Survey of Heart Disease.

Dinner will be served at 6:00 p.m., after which there will be the election of officers. At 7:45 p.m. C. G. Farnam, M.D., of Peoria, Illinois, will recite some original medical poems Nonsense in Rhyme.

At 8:15 Walter C. Alvarez, M.D., professor of medicine, University of Minnesota (Mayo Foundation) and senior consultant in the Division of Medicine in the Mayo Clinic, Rochester, Minnesota, will speak on How Medicine Began.

All physicians in eastern Iowa and western Illinois are cordially invited to attend this program.

James Dunn, M.D., Secretary

PERSONAL MENTION

Dr. Nathaniel G. Alcock, professor of urology, State University of Iowa, College of Medicine, Iowa City, spoke on "The Value of Urologic Findings in the Differential Diagnosis of Abdominal Tumors", at the meeting of the Texas Surgical Society at Dallas, Texas, Tuesday, April 2.

Dr. Rodney C. Wells was elected president of the Marshalltown Rotary Club at the annual election of that organization held Tuesday, April 9, at the Hotel Tallcorn in Marshalltown.

Dr. Robert C. Mugan, who was graduated in 1938 from Creighton University School of Medicine, Omaha, has become associated with Dr. Martin J. Ryan and Dr. John S. Tracy in Sioux City. Dr. Mugan comes direct from Chicago where he has served as resident physician at St. Catherine's Hospital for the past year.

Dr. John H. Peck, superintendent of the State Sanatorium at Oakdale, delivered an address on "Diagnosis, Treatment and After Care" for a meeting of nurses and hospital administrators, held in Keokuk, Friday, March 29.

Dr. A. P. Smith who has practiced for several months in Waukon, has left that vicinity and moved to Des Moines, where he will assume a position in the medical corps of the C. C. C. Camp.

Dr. John J. Terrall, after practicing in Cedar Rapids for twenty-four years, is leaving that city to become assistant superintendent at the Hospital for Epileptics and School for Feeble-minded, located in Woodward.

Dr. Ernest E. Shaw of Indianola was guest speaker for the Grundy Rotary Club, at a meeting held in Grundy Center, Monday, April 1. Dr. Shaw spoke on "Socialized Medicine".

Dr. Dean M. Lierle, professor of otolaryngology, State University of Iowa, College of Medicine, Iowa City, discussed "Causes of Hoarseness" before the Omaha-Douglas County Medical Society, at Omaha, Nebraska, Tuesday, April 9.

Dr. L. J. Katz, formerly of Fayette, has announced his removal from that city, and his location in Swea City, where he will continue the practice of medicine.

Dr. Marvin F. Haygood of the State Department of Health, Des Moines, spoke on the annual public health program of the Woman's Club of Rock Valley, at the meeting held Friday, April 5, at the Warren Hotel in Rock Valley. Dr. Haygood's address was on "The Pure Food and Drug Laws".

Dr. John C. Peart who has practiced in Dixon for the past seven years, has moved to Davenport and opened offices in the Union Bank building. Dr. C. C. Christiansen, formerly of DeWitt, is locating in Dixon.

Dr. E. D. Plass, professor of obstetrics and gynecology, State University of Iowa, College of Medicine, Iowa City, addressed the Civic Department of the Fort Dodge Women's Club in that city Tuesday,

April 9. His subject was "Fight Cancer with Knowledge".

The many personal and professional friends of Dr. Charles J. Rowan will be interested in learning that he has returned to Iowa, and will be in the University Hospital in Iowa City for the next month, under the care of Dr. Arthur Steindler. Dr. Rowan, who is a former professor of surgery at the State University of Iowa, College of Medicine, has been living in California for the past several years. We are sure Dr. Rowan will welcome any visitors who might wish to call on him.

MARRIAGES

The marriage of Miss Lillian Jamesson of Cedar Rapids and Dr. James A. Smrha, also of Cedar Rapids, took place Thursday, April 25, at the Immaculate Conception Church in Cedar Rapids. Dr. and Mrs. Smrha will live in Cedar Rapids where Dr. Smrha has been practicing for the past four years.

DEATH NOTICES

Cooley, Laurence Edwin, of Dubuque, aged thirty-nine, died March 26 after an illness of three months. He was graduated in 1928 from the University of Minnesota Medical School, Minneapolis, and at the time of his death was a member of the Dubuque County Medical Society.

Ditto, Richard Coleman, of Oakville, aged sixty-six, died March 28 in the Burlington Hospital. He was graduated in 1901 from the Keokuk Medical College, College of Physicians and Surgeons, and at the time of his death was a member of the Louisa County Medical Society.

Dixon, John Wesley, of Burlington, aged seventy-five, died suddenly March 26 after a heart attack. He was graduated in 1890 from Queen's University Faculty of Medicine, Kingston, Ontario, Canada, and had long been a member of the Des Moines County Medical Society.

Garner, William Arthur, of Kiron, aged sixty-two, died suddenly March 27 following a heart attack. He was graduated in 1905 from the Hahnemann Medical College and Hospital, Chicago, and at the time of his death was a member of the Crawford County Medical Society.

Hully, Henry David, of Griswold, aged sixty-nine, died March 23 after an extended illness. He was graduated in 1902 from the University of Nebraska College of Medicine, Omaha, and at the time of his death was a member of the Cass County Medical Society.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. WILLIAM JEPSON, Sioux City

A Historical Sketch of Marshall County Medical Society

The County Medical Society as I Have Found It

ARTHUR D. WOODS, M.D., State Center

With the March of Time customs change; ideals are altered. The medical world offers no exception to this inexorable rule. Undergraduate medical education today is very different from that of fifty or sixty years ago. Postgraduate courses and county medical society programs have likewise bowed to the March of Time. That I may lend proof to these assertions, I present for your consideration two very interesting, old medical documents. The first is the program of a "Called Meeting" of the Central Iowa Medical Association held in Eldora, Iowa, May 5, 1881. The second is the Annual Announcement of the Medical Department of the University of Iowa dated October 5, 1881.

The program of the "Called Meeting" was found by accident in one of the very old books of the late Dr. Engle. It reads as follows:

A CALLED MEETING

of the

IOWA CENTRAL

MEDICAL ASSOCIATION

at

"OPERA HALL"

ELDORA - - IOWA

MAY 5, 1881

PROGRAMME

The Association will convene at "Opera Hall", Eldora, Iowa, May 5th at ten o'clock a. m., and adjourn at 4:30 p. m., of the same day. The following papers and reports are expected.

- | | |
|---|--------------|
| E. D. Yule, M.D., | Marshalltown |
| Puerperal Convulsions with report of cases. | |
| F. M. Ward, M.D., | Marshalltown |
| Caries of Joints, with Treatment. | |
| Wm. T. Harvey, M.D., | Union |
| Chest and Lung Injuries—Two cases with remarks. | |
| N. C. Morse, M.D., | Eldora |
| Diphtheria, its diagnosis and treatment. | |
| B. F. Kierulff, M.D., | Marshalltown |
| Remarks on Roetheln or German Measles. | |
| E. H. Hazen, M.D., (By invitation) | Davenport |
| Otitis Media. | |
| C. Reiterman, M.D., | LeGrand |
| Erysipelas—With report of case. | |

Clinical Cases

- | | |
|---|--------------|
| Enoch Lewis, M.D., | Albion |
| Case showing result of treatment for Pleural Abscess. | |
| B. F. Kierulff, M.D., | Marshalltown |
| Case showing result of Resection of Humerus. | |
| N. C. Morse, M.D., | Eldora |
| Case showing result of operation for Epithelioma of Lip. | |
| Two cases illustrating some of the "Sequelae" of Scarlet Fever. | |
| F. M. Ward, M.D., | Marshalltown |
| Case showing results of Excision of Shoulder and Elbow Joints. | |

Subject for Discussion

Medical Fee Bill.—Open to all in attendance.

Harriet A. Coniff, M.D.,	N. C. Morse, M.D.,
Secretary	President.

Now let us take a look at this second document. I am greatly indebted to Dr. John T. McClintock for the loan of this old relic. In a personal communication Dr. McClintock says: "This announcement was given to me a good many years

ago by Dr. Rockwood and is the only one we have. Since leaving the Dean's office I have turned over this old collection to him, and you can, therefore, see the necessity of having it returned as it would be quite unlikely that we would ever secure another copy." May I read just a few extracts from this announcement?

MEDICAL DEPARTMENT
STATE UNIVERSITY OF IOWA

Annual Announcement
1881-82

"The twelfth course of *lectures* will begin Wednesday, October 5th, 1881, and close March 1st, 1882."

"The *lectures* in Anatomy are thoroughly illustrated. . . ."

"Physiology and Microscopic Anatomy—The *lectures* are profusely illustrated by means of charts, diagrams etc. . . ."

"Chemistry and Toxicology—The course of *lectures* in chemistry is thoroughly experimental, etc . . ."

"Materia Medica—This branch is taught by *lectures* and examinations. . . ."

But why go further with this? As we compare the program of the Iowa Central Medical Association held in Eldora, May 5, 1881, with that of the Annual Announcement of the Medical Department of the University of Iowa for October 5, 1881, two glaring facts stand out. On the one hand, the Eldora meeting was loaded with personal initiative and active participation on the part of the members of the Association; on the other hand it is to be seen that the undergraduate student down in our University in 1881 had little, if any, personal initiative but was content to bask in the dazzling effulgence of *lectures* as he pursued his rôle of passive acquiescence. With the March of Time changes may become almost paradoxical. Today the undergraduate student conducts his work with more and more personal initiative and less of lectures, while the county medical society takes on the lecture plan with its average member happy and complacent in the rôle of passive acquiescence. If personal initiative and active participation in the solving of medical problems are good for the undergraduate student are they not also good for the county medical society?

Modern county medical programs are becoming streamlined and chrome-plated. We must be lectured to by someone from over the hill and far away. We must have the "big shots". Any member of a county medical society today who has the temerity to suggest that we discuss our problems in our own way is met with a stony look and a threat of an empty house. I am not trying to be facetious; these are cold facts. Not long ago I was told by a member of this society that if

we are to have meetings that amount to anything and bring out the members we must have speakers from Chicago and Rochester. Des Moines or Iowa City no longer turns the trick. While I concede to this fellow member the prerogative of private opinion in the fullest sense, I shall continue vigorously to disagree with him.

In Des Moines last April, I had the pleasure of discussing these problems with the editor of the Linn County *Bulletin*, Cedar Rapids' most estimable Dr. T. Frank Hersch. Now the doctor, as you doubtless know, has what is called a dynamic personality, the kind it takes to give to a county medical society a national reputation and to bring to its meetings men who are known in medicine the length and breadth of the land. Bill Nye, America's beloved humorist of the gay nineties, once declared, "The sun cannot be examined through an ordinary telescope with impunity. Only one man ever tried that, and he is now wearing a glass eye that cost him \$9.00." It might be well for any of us who belong to that great group of ordinary lesser lights not to examine any medical problem too minutely in the presence of the editor of the Linn County *Bulletin*. I did that very thing at the last meeting of the Iowa State Medical Society and here I am paying the price. It was all so innocent and unintentional on my part. I met Dr. Hersch at the meeting and of course I said complimentary things about that outstanding Linn County Medical Society.

Everything would have been all right if I had only stopped there, but I ventured the opinion the Linn County Medical Society plan was all very well down there in Linn County with her able editor at the helm, but what happens when a society with a smaller membership tries to emulate the achievements of this group? I asked these questions:

Is it good for a county society to depend entirely on outside talent for its programs? What happens to a society whose membership constantly absorbs and never contributes? In the transfusion of medical knowledge is it well for the members of a county society to be forever recipients and never donors? What happens to a society when there is no mutual exchange of ideas on the common problems of our everyday practice? In other words should the county medical society continue largely along the lines as we knew them before the advent of hard surfaced roads and rapid transportation, or should they become post-graduate lecture courses?

However, I did not ask these questions of Dr. Hersch with impunity. I got *my eye* knocked out and the price I had to pay was not \$9.00 but the

promise to assemble my views on the subject. "The County Medical Society As I Have Found It." Some years ago one of our great teachers in medicine, Dr. Richard C. Cabot, had this to say in the preface of his books: "All that I have described I *know* by prolonged use." Again he says, "In diagnosis as in therapeutics, 'What do you find valuable' is the question our contemporaries ask any of us, not 'What is recommended'." So, as I embark on this unusual undertaking I shall draw from a prolonged experience of thirty-one years as a member of one of the county medical societies of this state. I shall confine my remarks not to "what is recommended," but to what I have actually found valuable.

An historical prologue never detracts from any discourse, while it is often an indispensable aid to understanding. I take pleasure in presenting to you the charter of the Marshall County Medical Society, dated September, 1903. To the older members of the state society who may be present here tonight this charter will conjure up a flood of memories; to the younger members it should be suggestive of that time in organized medicine when spade work was not only necessary but was being done. I joined the Marshall County Medical Society in the autumn of 1908. Aside from the charter no records of the society are available until 1914. I recall vividly the first meeting I attended. It was an evening meeting held at the county seat in one of the churches. The president at the time was a tall, blackeyed, hook-nosed individual, a pioneer, one of those rugged individualists. I know he was a pioneer because I afterward learned he performed the first mastoid operation in Marshall County. The patient was a woman, five months' pregnant. It takes a rugged individualist to bore into the mastoid cells with a dental burr while pumping the engine with one's foot. I once asked him how he mustered the courage to do such a thing. His picturesque answer was, "Oh hell, I had lost several patients with mastoid abscess and I thought I would try something else. I knew I couldn't make matters any worse." The old doctor is dead but his patient lives with her family in the southern part of the county today.

Returning to that first meeting, at the close of the program the president came to me and said, "Suppose you give us a paper at our next meeting in December." I protested, "Oh, I am too young and too inexperienced." "Nonsense," he said, "You cannot get into county medical society work any younger. Come; give us something, any topic you choose."

I thought it over. Obviously any clinical subject was out of the question since I had had no

clinical experience to speak of. Of course, I thought of the time-worn textbook paper with all its erudite trimmings so dear to some essayists, but I never liked the textbook paper. There was left only one possibility. When I had come from the University some months before I had brought with me a choice bit of viscera preserved in that exotic manner known so well to our late Dr. Prentiss. During the summer I had amused myself as I had waited for that next patient by exploring the mysteries of the lesser peritoneal sac as seen from behind. I had always wanted to view the scenery of this region from the vantage point of the spigelian lobe of the liver and the tail of the pancreas and this was the first chance I had had for such leisurely indulgence.

The thought struck me, "Why not present the study of this unusual approach to the lesser sac before the county society in December?"

My decision was made. I appeared on the program at the December meeting which was held in State Center. At that time I lived in Melbourne. I made the trip to the neighboring town in a livery rig from the local barn. Automobiles were very scarce in those days of dirt roads. The precious viscera were tucked away under the boot in the back of the buggy and my pockets were filled with colored crayons. The meeting was held in the Masonic Hall. Dinner was served. First on the program was a paper on the value of the microscope as an aid in diagnosis. A recent epidemic of cerebrospinal meningitis in the county bulked large in the discussion which followed. Then came this viewpoint of the lesser sac. Some of the women in the audience were shocked when my queer looking manuscript proved to be just an old liver and gruesome mess of guts. I arranged the lesser peritoneal sac on the table before them with all the nicety at my command. I sketched and I talked and I demonstrated. The thing went over; it was a success.

What did I find valuable in that experience, and why was it a success? May I tell you, first my contact with the president of the society, Dr. Theo. Engle, was fortunate. Here was a man who believed in the efforts of organized medicine and insisted that young men get into the work early. Second, my decision not to write a textbook paper was a happy one. A discussion of the lesser peritoneal sac may have been unusual and a bit queer but it did require some originality and considerable personal effort. My initial appearance before a county society taught me the vast difference between an active donor and a passive recipient.

Let us now examine the record of the Marshall County Medical Society beginning January 1,

1914. On that date Dr. George M. Johnson of Marshalltown assumed the duties of secretary of our society. Marshall County has had many able secretaries but Dr. Johnson was one of the best secretaries we ever had. For seven years he carried on this important work. His records were painstaking and complete, and bear silent testimony to the great value of an able secretary and a good physician. From 1914 to 1919 inclusive, a period of six years, the records show nineteen meetings in all, an average of about three each year. In the minutes of the meeting of October 15, 1919, we find this significant entry: "Moved and carried that the society meet the first Tuesday of every month at the Marshalltown Club or some stated place to discuss some medical or surgical subject which shall be presented by two members of the society." This plan was followed for a period of three or four years. Many excellent papers were prepared and read by our own members. Well selected cases from their own practice were presented. Lively discussions took place. Let me illustrate by giving you the program of the meeting held December 7, 1920, during which cases were presented on Carcinoma of the Throat, Splenomegalic Polycythemia, and Pus in the Pericardium.

These cases were presented and ably discussed by three members from our own society. I shall never forget even the details of the case of polycythemia. We were asked to examine a middle-aged man who had a very red skin and a markedly enlarged spleen. One of our members expressed himself, perhaps a bit prematurely, as favoring splenectomy. The doctor who presented the case was expecting this rather unfortunate expression of opinion and encouraged its enlargement. When the discussion was finished one of the younger members who had made a study of the blood gave the findings. The diagnosis was unquestionably splenomegalic polycythemia. I need not enlarge upon the discomfiture of him who had recommended splenectomy.

If I should be asked to describe an ideal county medical meeting I could do no better than cite this meeting of the Marshall County Medical Society of December 7, 1920. To begin with there were more members at the meeting than at the dinner. The cases presented came from the day by day practice of our own men. They were carefully prepared and the discussions which followed were lively and a bit heated. Such meetings are valuable in every respect and particularly to those who prepare the material and carry on the discussions and also for the progress and maintenance of medical knowledge.

In 1923 the Marshall County Medical Society

accepted a contract from the Board of Supervisors for the care of the indigent for one year. The society took immediate action by setting aside \$1,000.00 of this amount "for the payment of dues of all members of the society, of all dinners and for disbursements of clinical meetings held during the year." The action was of unprecedented importance in the history of our society. It made for equality and solidarity and progress of membership. We have never deviated from the plan except to increase the amount from \$1,000.00 to \$2,000.00 in 1935. After twelve years a surplus had accumulated and a dividend of \$100.00 was paid to every member of the society regardless of the length of time of his membership in the society or his activity in practice.

We can obtain a better perspective of this plan as carried out in our society by quoting figures. The amounts I shall quote are approximate, not exact. In sixteen years Marshall County has paid to the county medical society about \$6,050.00. During these years our membership has averaged forty. Each year our secretary has mailed a check in full for dues of all members to the central office in Des Moines. This totals \$5,560.00. From 1923 to 1938 our fellowship dues in the American Medical Association have aggregated \$3,960.00. What our dinners and miscellaneous expenses have been I do not know. Suffice it to say for sixteen years the Marshall County Medical Society has been on a solid financial basis. No member has ever been delinquent in his state society nor in his fellowship in the American Medical Association. All other expenses of the society have been paid out of these funds. This plan has been eminently satisfactory to everyone.

For a number of years I have been privileged to serve as delegate from my society. In 1929 I was instructed by the Marshall County Medical Society to go to the state meeting and do everything possible to make Marshalltown the place of meeting in 1930. Dubuque was equally determined and I met with stiff opposition. We fought it out in the nominating committee and secured its recommendation for Marshalltown, but the delegate from Dubuque never gave up. At the Friday morning session of the House of Delegates Dubuque refused to accept the recommendations of the nominating committee and carried the fight to the floor. Marshall County certainly would have lost had it not been for my good friend, Dr. Oliver J. Fay. He made the motion in favor of Marshalltown, and I was forcibly reminded that if you are going to play politics it pays to have friends. Marshalltown secured the vote; I kept faith with my society.

In preparation for the annual meeting held in

Marshalltown in 1930 it fell to my lot to act as chairman of the committee which assembled the medical cases for our guest speaker, Dr. O. H. Perry Pepper of Philadelphia. The committee had a very nice selection of cases. Among them were several rare cases and a few common, everyday sort. I was surprised when Dr. Pepper showed an avidity for pernicious anemia, rheumatic fever and bronchiectasis and rejected our *exceptional cases*. Speakers in both county and state meetings so often seek the exceptional case, in order perhaps to lend an atmosphere of erudition to their remarks; not so with Dr. Pepper. The cases he presented before the Iowa State Medical Society on that occasion were the kind that bulk large in everyday medicine. If anyone wishes to verify this statement let him turn to the JOURNAL of the Iowa State Medical Society for November, 1930. Here he will find a discussion of a few of the common problems encountered by the general practitioner anywhere and everywhere. His selection of cases and his able presentation of the problems involved were indeed extraordinary. I have attended county meetings in the nine years since Dr. Pepper visited us, and listened on more than one occasion to discussions that would have been more at home in the Archives of Internal Medicine.

I continue to ask these questions. Should not the bulk of county medical society programs be made up of the common everyday sort of things rather than the rare problem, however brilliant it may appear with its array of graphs and statistics and other erudite paraphernalia? Should we not seek the guest speaker more as a counselor, a torch bearer of new tidings, and less as a lecturer? Are we fair to our guest speakers when we ask them to make the entire contribution to an evening's program while often we do not even accord them the courtesy of well merited discussions?

The county medical society will be best served when each member contributes his mite regardless of how trivial it may seem. As a matter of fact there is nothing trivial about any phase of the practice of medicine. To that member who says he has nothing to contribute to our county medical society programs and to him who has slight regard for another's efforts, I would commend the following remarks from one of the closing paragraphs of that delightful essay, "Walden" by Henry D. Thoreau: "In sane moments we regard only the facts, the case that is. Say what you have to say, not what you ought. Any truth is better than make believe. Tom Hyde, the tinker, standing on the gallows, was asked if he had anything to say. 'Tell the tailors,' said he, 'to remember to make a knot in their thread before they take

the first stitch.' His companion's prayer is forgotten." Our county medical societies need more of this philosophy. We need to remember the importance of the knot in that first stitch.

This historical sketch of "The County Medical Society As I Have Found It" leads me to believe that the first principles and common problems should be emphasized over and over again. This should be done not only by the best and the greatest specialists who can be found, but also by the individual members of that society. I plead for the exercise of these simple truths in the conduct of our county medical society meetings.

COMING MEETINGS

Because we feel that many of the members of the Iowa State Medical Society may be interested in a number of national and special meetings, we are herewith publishing a calendar of the approaching sessions. More detailed information may be secured from the Journal office.

A clinicosurgical week under the direction of the Mayo Foundation, May 6 to 11, inclusive. Series of surgical clinics and discussion, with particular emphasis on treatment of cancer. Visiting physicians invited to attend. Chairman, N. W. Barker, M.D., The Mayo Clinic, Rochester.

Annual Session of the Illinois State Medical Society, Peoria, May 21, 22 and 23, 1940. Secretary, Harold M. Camp, M.D., Monmouth, Illinois.

American Association on Mental Deficiency, Atlantic City, May 22, 23, 24, 25 and 26, 1940. Secretary, Dr. E. Arthur Whitney, Washington Road, Elwyn, Pennsylvania.

Twenty-fifth Annual Meeting of the American Association of Industrial Physicians and Surgeons, together with the First Annual Meeting of the American Industrial Hygiene Association, Hotel Pennsylvania, New York, June 4, 5, 6 and 7, 1940. Secretary, Dr. Volney S. Cheney, 8018 South Hermitage Avenue, Chicago, Illinois.

Sixth Annual Meeting of the American College of Chest Physicians, Biltmore Hotel, New York, June 8, 9 and 10, 1940. General chairman, George Ornstein, M.D., 115 Central Park W, New York.

American Medical Association, Annual Session, New York, June 10 to 14, 1940.

Sixth Annual Meeting of the Mississippi Valley Medical Society, Hotel Fort Armstrong, Rock Island, Illinois, September 25, 26 and 27, 1940. Secretary, Harold Swanberg, M.D., Quincy, Illinois.

Sixty-ninth Annual Meeting of the American Public Health Association, Book-Cadillac Hotel, Detroit, Michigan, October 8, 9, 10 and 11, 1940. Executive secretary, Reginald M. Atwater, M.D., 50 West 50th Street, New York.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- TEXTBOOK OF NERVOUS DISEASES**—By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.
- OBSTETRICAL PRACTICE**—By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.
- THE NEWER KNOWLEDGE OF NUTRITION**—By E. V. McCollum, Ph.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University. Fifth edition, entirely rewritten, illustrated. The Macmillan Company, New York, 1939. Price, \$4.50.
- SYNOPSIS OF PEDIATRICS**—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.
- POPULATION RACE AND EUGENICS**—By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by author, 1939. Price, \$3.00.
- TUMORS OF THE HANDS AND FEET**—By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.
- CANCER OF THE LARYNX**—By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.
- SCLEROSING THERAPY**—Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.
- THE NEW INTERNATIONAL CLINICS, VOLUME IV, NEW SERIES TWO**. Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.
- THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART**—By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.
- THE 1939 YEAR BOOK OF GENERAL SURGERY**—Edited by Evarts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.
- LOVE PROBLEMS OF ADOLESCENCE**—By Oliver M. Butterfield, Ph.D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

BOOK REVIEWS

THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART

By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea & Febiger, Philadelphia, 1939. Price, \$6.50.

This volume is devoted entirely to a discussion of the changes which occur from alteration in the size, shape and position of the heart in the absence of myocardial disease. These changes may be identical with the changes produced by myocardial disease, for they may alter any of the complexes of the electrocardiogram. The author has divided the conditions which affect the contour of the heart, and hence the cardiograms, into two groups, the extracardiac and the intracardiac.

These two groups are discussed in detail with short case reports accompanied by teleoroentgenograms and electrocardiograms. This makes the book extremely simple and instructive. Although the significance of these changes has been appreciated for some time, they are often neglected in the routine examination of the electrocardiogram. As the author states, the number of physicians using the cardiograph is increasing rapidly since the cost of the instrument has been lowered and the technic has been simplified. As a result, many physicians now interpret the records without the study and application necessary for doing this properly.

The reviewer strongly recommends a careful study of this book by anyone taking cardiograms. It will be found especially valuable in differentiating the similar changes that are found in myocardial disease and those due to changes in the size, shape and position of the heart.

E. E. K.

SCLEROSING THERAPY

Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.

This book is composed of four sections under separate authors and these will be considered separately. In the first section Arthur F. Bratrud deals with the injection treatment of hernia. The technic of this procedure is carefully described and illustrated by excellent drawings. Dr. Bratrud analyzes his results in a total of 1,899 hernias treated by injection in patients ranging from infancy to eighty years of age. The percentage of cures was seventy-five per cent and there was no fatality. Such a record is truly excellent when one appreciates the fact that the mortality rate in any large series of surgically treated cases is around one per cent, and the recurrence rate from eight to fifteen per cent.

The injection treatment of hydrocele is described by George F. Hoch. This section is rather brief but the anatomic points pertinent to treatment are well illustrated. Unfortunately there is no statement of the number of cases treated by this method and no tabulation of results obtained.

The injection treatment of varicose veins is under the authorship of Harold J. Shelley. This section is in fact a comprehensive review of the literature on varicose vein treatment. The chapter on complications following treatment is especially good. In general, the principles of treatment advocated by this author are sound. However, the wisdom of performing high saphenous vein ligation in the office is questioned by this reviewer, who believes that the operation is strictly a hospital procedure.

In the fourth and final section, Frank C. Yeomans summarizes the injection treatment of hemorrhoids. It is interesting to note that this author prefers surgical treatment except in patients who are poor risks. A lack of enthusiasm for the injection method is apparent from his statement that "recurrence after treatment by injections is much greater than after surgery". One would conclude from the final chapter that Yeomans considers injection therapy, at best, a palliative procedure which is justified because of symptomatic relief rather than anatomic cure.

J. M. B.

DISEASES OF THE EYE

By Charles H. May, M.D., consulting ophthalmologist to Bellevue, Mt. Sinai and French Hospitals, New York. William Wood and Company, Baltimore, 1939. Price, \$4.00.

A standard textbook of ophthalmology in many medical schools for years, this book has been thoroughly revised and brought up to date. By maintaining a small volume the author adheres to his original idea of a work designed primarily for medical students and general practitioners. There is a thorough and efficient presentation of the more common conditions, from both a diagnostic and therapeutic angle, with less detail on the more rare and complicated conditions that lie definitely in the field of the specialist.

One is particularly impressed with the increased number and the quality of the color plates. This book may be highly recommended as a comprehensive and extremely useful work.

S.A.B.

OBSTETRICAL PRACTICE

By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.

The second edition of this excellent textbook will undoubtedly be welcomed as enthusiastically as was the first edition. Many of the chapters have been thoroughly rewritten. Recent knowledge concerning the physiology of pregnancy, menstruation, ovulation and lactation has been added. The chapter on abortion is excellent, and the discussions of toxemia, complications of pregnancy and puerperal infection, are good.

The subject matter throughout the text has been carefully prepared and presented. It is profusely illustrated by sketches and diagrams. The diagrams accompanying descriptions of the various mechanisms of labor are more valuable to the student than

several chapters of written explanation. This text should be an important practical aid to both the student and the practitioner and is heartily recommended.

A. W. B.

DISEASES OF THE SKIN

By Richard L. Sutton, M.D., professor of dermatology; and Richard L. Sutton, Jr., M.D., associate in dermatology, University of Kansas, School of Medicine. Tenth edition, revised, enlarged and reset. The C. V. Mosby Company, St. Louis, 1939. Price, \$15.00.

In this recently revised tenth edition of "Diseases of the Skin," Sutton and Sutton have compiled an encyclopedia of dermatology

While much of the material is a revision of their previous works, most of the classical dermatoses have been brought up to date. The recently described skin diseases, such as those due to vitamin deficiency, have been added and described in detail. Particular emphasis has been placed on pathology and treatment. Obsolete or unsatisfactory methods have been omitted or discussed critically and newer methods substituted. The book is profusely illustrated with more than 1,400 photographs and microphotographs, some of which are in color.

In the opinion of the reviewer, this work is a decided improvement over the author's previous books, and ranks high as a standard text of dermatology.

J.W.Y.

THE 1939 YEAR BOOK OF GENERAL SURGERY

Edited by Evarts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.

This book offers an excellent opportunity for the surgeon or general practitioner to review the outstanding articles from the surgical literature of the past year. Articles are concise, illustrations are good and the field is well covered.

A few examples of the interesting material found in this volume should be mentioned. Under the chest section the first successful ligation of a patent ductus arteriosus is presented, along with some excellent articles on diagnosis and treatment of bronchiogenic carcinoma and pulmonary embolism. The fracture section contains a preliminary report on the local use of crystalline sulfanilamide in compound fractures with unusually fine results. Various articles on surgery of the biliary tract and closely related organs are also among the better ones included in this edition.

Comments by the author, both adverse and complimentary, add a great deal by lending a feeling of unity to a volume taken from such a number of sources, and the task of condensing and editing such an immense amount of material has been well handled.

A. B. S.

THE VAGINAL DIAPHRAGM

By Le Mon Clark, M.D., Chicago. Illustrated. The C. V. Mosby Company, St. Louis, 1939. Price, \$2.00.

This volume is designed to furnish information to the physician concerning one method of contraception; namely, by means of the vaginal diaphragm and spermicidal jelly or cream. In 106 pages the author has outlined in detail certain phases of contraception as would probably be accepted by authorities on the subject, and which could well have been condensed into much fewer pages.

There is only one point where a question might arise, that of the "douche tip", the greatest enemy of the female vaginal tube. However, the book does contain a detailed description for general use by the practitioner who desires more extensive information on the vaginal diaphragm, especially as regards its fitting and instruction. L. D. S.

STANDARD BODYPARTS ADJUSTMENT GUIDE

Published by the Insurance Statistical Service of America, 542 Rush Street, Chicago, Illinois, 1939. Price, \$8.00, including ten years' revision service.

This is a very concise consideration of injuries and occupational diseases, intended primarily for the insurance fraternity but also of great practical usefulness to doctors in those chapters pertaining to medical fees and to the evaluation of disabilities. As a ready guide and a needed help this book should be conveniently at hand to every physician and surgeon for both his industrial and liability cases. E. J. H.

PROCTOLOGY FOR THE GENERAL PRACTITIONER

By Frederick C. Smith, M.D., proctologist to St. Luke's and Children's Hospitals, Philadelphia. Illustrated. F. A. Davis Company, Philadelphia, 1939. Price, \$4.50.

As the subtitle of this book reads, it is a good guide for the general practitioner and is a very practical refresher course or quick ready reference for the specializing proctologist. Illustrations are numerous and clear, and illustrate best those points of technic which are usually the most difficult to portray. Small useful hints or aids are given, such as the recommendation never to shave the patient, a practice all too frequently followed in the hospitalized patient, much to his later discomfort.

Postoperative pain can be well managed by the instillation of at least five cubic centimeters of diathene under the site of the surgical wound. The author has found less than this amount to be ineffective. One chapter is devoted to pilonidal cyst

and its treatment. Especially valuable in this chapter is the definite recommendation not to suture the wound closed but to let it fill in by granulation. Recurrences practically never occur when this is done. Another chapter which this reviewer was pleased to see included was the one on the parasitic infections. All too frequently these conditions are ignored in books on rectal disorders.

In the operative technic the conciseness and clearness of each explanation renders the book wholly truthful to its title "Proctology for the General Practitioner." C. H. J.

MEDICOLEGAL PHASES OF OCCUPATIONAL DISEASES

By C. O. Sappington, M.D., formerly director of industrial health, National Safety Council. Industrial Health Book Company, Chicago, 1939.

This book represents a pioneer incursion into a medical and public health field pertaining to very modern times. The author has endeavored to be thorough in the scope of his book and sufficiently in detail to furnish examples for the usual experience in industrial diseases. There is immense help for the medical man, for the insurance man and for the legal adjuster of claims.

Of particular value are the classification of the causes of occupational diseases or of occupational poisonings, the conditions and limitations under which these causes are effective for harm, the outline of the disabilities generally experienced, and the methods best suited for the necessary industrial health survey and the indicated preventive measures. E. J. H.

MODERN DIABETIC CARE

By Herbert Pollack, M.D., instructor in clinical medicine, Cornell Medical College. Harcourt, Brace and Company, 383 Madison Avenue, New York, 1940. Price, \$2.00.

This book is written in a language which the layman, with a little study, can easily understand. It was prepared especially for the diabetic patient who must learn the many lessons necessary to control his disease. As the author states in the introduction, the diabetic individual can, and does live a life which approximates that of his friends. This book is written so that this may be accomplished.

Part one tells the patient what he should know about his disease and insulin. Part two discusses food and calculation of the diabetic diet. This author believes that, except in a few cases, the need for weighing the diet does not exist, and that the restricted or special diet is obsolete.

The book includes a chapter of questions and answers, and an appendix of food equivalents and substitutions. E. B. W.

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THE PRESIDENT'S ADDRESS* MEDICINE AND PUBLIC RELATIONS

FELIX A. HENNESSY, M.D., Calmar

I wish to discuss with you this morning the subject "Medicine and Public Relations." Some will agree with me in this presentation; others perhaps will disagree. I only ask you to reject the false, examine the doubtful and accept the true.

The most significant thing about any human being is what kind of relations he sustains to other people. This determines more than any other one thing what he gets out of, and gives to, the world. Public relations are what you make them. After the Civil War, the industrial problem in the United States was confined largely to raising the money to build plants and increase production. During this period corporations grew rapidly and a tendency developed on the part of some financial organizations and corporation executives to feel that it was nobody's business what they did. Chief executives of large corporations were extremely difficult to reach and just as little information as possible was given out.

Thirty years ago, many electric light companies faced hostile public opinion. This meant grave danger of competition from municipally owned plants. The plan which proved universally successful, gained good will, increased the consumption of electric current and lessened the danger of city competition, was the policy of publicity campaigns. The president and other executives gave talks before gatherings of all sorts. The public was told the facts. What the company was accomplishing, its future aims, its desire to serve the public better and to give more and more for the money it received were all revealed to the public. To the degree this policy was continued, and as long as it was continued, there was less talk about the power trust, holding companies and the like.

A concrete example of what can be accom-

plished is the case of a gas company. Just before the World War this company spent considerable money on a new plant. It was to be one of the most efficient in the United States. Unfortunately, the equipment to be used had to be largely bought in Germany. The stockholders were soon dissatisfied. They did not like to see all that money lost and as there seemed no immediate prospect of completing the plant in accordance with the original plans there was a change in management. The hostility grew, nevertheless, to such a degree that after the war the city council voted an investigation of the company. The new management, however, faced the situation realistically. One of the first steps taken was to invite the civic clubs, the women's clubs and all sorts of clubs to visit the plant. People went home from these visits feeling the company was not such a bad one after all. They were glad to have an executive of the company give a talk to some club to which they belonged. The city had to go through with the investigation but, with this change in public attitude, it was obvious the report would have to be friendly to the company. Before the adoption of this policy of taking the public into the confidence of the company, people were certain the electric light company was better managed than the gas company. Afterwards, they were just as certain that the new management of the gas company had made it as good as the electric company and probably better. Far more people had met and talked with the president of the gas company than with the president of the electric company. They found him to be a man they could like and they knew such a man could not possibly head a company as bad as they had believed the gas company to be.

It is no longer the product or the services which have to be sold. The management has to sell itself to the public, to the customers. You can easily understand how this policy applies to medicine. The great task confronting the physician in dealing with his public is to sell a health program,

*Presented before the Eighty-ninth Annual Session, Iowa State Medical Society, Des Moines, May 1, 2 and 3, 1940.

which if properly done will create a demand on the part of the citizens for his services. It is only by a well planned program that we can secure the cooperation of the community we are serving. Obviously, the first requisite to a well planned program is the definite planning in terms of the community's needs with definite objectives in mind. Without an accurate objective, surely, no effective program can be designed. The public's attitude is molded by a series of approaches, rather than by one isolated mention of the subject or problem. After the definite objectives have been decided upon, the next question is the manner in which we are to get our message across to the people, and the various channels and mediums of education which are available to us in this part of our relations with the public.

We can interest very diverse groups, including the school personnel, the children, the industrialists, labor unions, milk producers and distributors, the financial officers of the community, the ministerial association and other unofficial civic groups, among which can be mentioned the P.T.A., Federation of Women, Chamber of Commerce and service groups. In working with groups of children, in addition to the school system, one can secure interest not only in individual hygiene but community health problems through the 4-H groups of the farm bureaus, the Boy Scouts, the Girl Scouts, and the Y. M. C. A. and Y. W. C. A. In working with these age groups it is well to keep in mind that we are dealing with the leaders of tomorrow, and in addition to creating an immediate interest in our work we are properly informing the leaders of tomorrow who will have some appreciation of the place and function of a physician.

There are two occasions on which a self-respecting man should never utter the word "no." The first, under penalty of physical injury, is on the occasion of one's wedding. The second, under no less a penalty of social injury, is when one is asked to give a talk. While a negative reply to this last request is not accompanied by the shot-gun traditions of the former, its repercussions, in a purely business and social way, can be just as dangerous to a promising career.

"All right," you argue, "I've accepted. I've made my talk. Now, aside from a case of nervous prostration, what has it got me?"

Assuming that your talk was mildly successful, you have gained in several ways. First, you have lifted yourself above the "passive horde;" psychology factors supply you with a wholesome and healthful dose of self-esteem; and this esteem is manifest not only in your own eyes but in the mind

of each person in your audience. You are no longer "member Joe Doakes;" to them you are "Mr. Doakes, who gave a talk." Perhaps a few will even go so far as to compliment you; there are new friendships, and new contacts in every extended "glad hand." Your business and professional sphere has been noticeably broadened, its boundaries extended into hitherto untouched fields. He who is silent is forgotten; he who abstains is taken at his word; he who does not advance falls back; he who stops is overwhelmed, distanced, crushed; he who ceases to grow greater becomes smaller; he who leaves off, gives up; the stationary condition is the beginning of the end.

The basic function of modern living is education. It informs its devotees of the existence and nature of commodities and services by explaining the advantages to be derived from their use. It is essential in the first instance to have a good product, or association or society; but that is not enough. It is just as essential to create a desire for it. The person or association of persons who can produce a combination of excellence and demand is performing a real public service. They enlarge the mental horizon and provide new forms of utility and service. The material benefits pass over into spiritual benefits.

The chief aim of all professional and business activity is to place the product of the dealer into the hands of the consumer. In this case the dealer is a healer of human ills; the consumer, the sick person. Our job is to place the product "health" into the hands of the consumer, the chronically and acutely sick. Proper avenues of publicity crystallize public sentiment in favor of a particular treatment, proposition or product. By public relations I aim to crystallize public sentiment in favor of the restoration of health. We know that by telling our story truthfully, simply and naturally, we will create a need of medical services and humanity will be more benefited than if we sit idly and quietly by our desks in complacent hopefulness.

Public relations are also a real service to the client. A good chess player never forgets that he is in the game for only one thing; he wants to checkmate his opponent. It may take two moves, or two hundred to do it, but he never loses sight of his one chief aim and end. So a doctor who accepts the best from all the best methods of healing never loses sight of the fact that he is aiming finally to benefiting more patients. He may be moving the pawn of public sentiment; he may be educating the public to reverence for a wonderful science; he may be teaching them respect for a great truth or principle; he may be making any

one of a thousand moves, but ultimately he molds public opinion.

Publicity tends to make one deliver the thing publicized. It creates a responsibility which forces one to strive to maintain a high standard of professional service. One who maintains that his service represents well-defined standards and results, has practically discounted his note of hand with the public. He has to make good or fail. As soon as one realizes that his publicity commits him to a certain standard of service and conduct, he bestirs himself to improve his skill and knowledge. More art and skill in the application of his science are the result. The patrons reap the benefit.

A proper relation to the public would build goodwill for any science. Every successful product has a personality and individuality which identify it as the output of a particular concern. Every concern or business has an individuality whether of one man or the composite of many men. Publicity is good news of the thing we wish to sell, the health service we have for sale. It is multiplied information concerning our ability to supply a product or rather to render a service. We supply the certain and peculiar service "healing;" and render through it the wonderful product "health." Publicity tells folks where to secure that service which they need. Publicity has become the quietest, strongest force in our lives. If publicity were to cease this moment, within a year, we would be wondering what to wear, where to buy food, where to go, what to see; yea, almost what to do.

Every day we practice, we either make good impressions or bad impressions, or no impressions at all on our patients, the sick and the possible sick. Reputation both wide and good is the one great highway to leadership. Every doctor who renders efficient health service needs an effective method to create that seemingly intangible but nonetheless real and essential factor which is known as "favorable public opinion." The doctor has his capital tied up in his therapeutic knowledge and material equipment. He wants to be sure of sales; yet, he must be a servant to his patrons. The public does not have to buy what it does not want or believe in. Therefore, the doctor is sooner or later controlled by the prospective patient's attitude toward him and his science. He either profits and progresses, or loses and retrogresses by this opinion. Public relations of the right sort help to mold and establish proper and favorable opinion. To be better known in our communities will save many victims of unprofessional advice. Unprofessional health orientation has become a major social industry.

It comes to pass that health and medical instruction no longer are limited to approved medical schools and their graduates. Rather they are now found in eloquent ubiquity in all the parlors of the land. In short, health and, the cure of disease have conversationally arrived, and in a big way. For example, a lady impertinently regaled an outstanding neurologist on the pathetic limitations of the medical profession to cure "creeping paralysis." It appears that the husband of one of her dear friends for years had been suffering with a progressive disease of the spinal cord. "It certainly is a blot on the medical profession to have permitted Bill to have been incapacitated so long," she said. "Apparently doctors, hospitals and fancy laboratories are not as efficient as they are supposed to be." Pressed for the reason of this outburst, she announced, "A food expert has recommended a starvation diet. In this way the poisons are being removed from the spinal nerve. The patient is getting well. Now what do you think of that?" Being the innate gentleman that he was, the noted specialist kept his thoughts to himself and redirected his attention to the bridge game. Of course, he painfully knew that all the starvation diets in the world were just as helpless to make the "creeping paralysis" victim well as were all the king's horses and all the king's men in the relatively minor tragedy of Humpty Dumpty.

Again, consider the recent outburst of a successful trial lawyer. It occurred at a dinner party where, as usual, health assumed its important place in the conversation. Arthritis, it seemed, had captured a fair, middle-aged lady. Her "sciatic nerve," of whose location she had no idea, was doing all manner of unpleasant things to her, according to her own personal theory. "It's dreadful, this sciatica," she announced by way of focusing attention on her complaint. "Mrs. Rogers suggested soda in hot water, but it hasn't done me a bit of good. Alice Browning advised straight lemon juice and diluted epsom salts water, but they didn't work either. My chiropodist was sure an orthopedic shoe would fix me up, but it didn't. I don't know what to try next!" Evidently not wanting to see a lady continue in distress the aforesaid jury orator gallantly came to the rescue with profound advice: "Cut out all meat, and you'll be O.K. in thirty days!" Needless to say, the lady in question was off to another false and futile start.

The point of this story lies in the apparent nonchalance with which this dinner-table therapy was received by the other ten guests. Save for the prescription druggist whose living comes solely from physicians, no one even batted an eye. Certainly, none came to the defense of the

poor, incapable doctors who have been given to believe that a four years' course in college, followed by four years in a medical school, plus a hospital internship and many years of daily professional experience, invested them with at least some degree of knowledge regarding bodily ills and methods of treatment. Of course, if this recreation were entirely harmless the situation would still be absurd. However, when parlor professionalism directly kills, something should be done about it. Delayed surgical action and treatment, thanks to the unsolicited suggestions of medically ignorant friends, have in fact caused thousands of premature funerals, not to mention an incalculable number of serious illnesses.

The case of a prominent banker is in point. Suffering from a sharp pain in the abdominal region while playing golf, he was spontaneously advised in the club house locker room by no less a specialist than a salesman of electric refrigerators to "take a life-sized dose of castor oil immediately." "Your system is all clogged up, Jim. I was that way too a few days ago. A good shot of the oil and I became a new man," he argued. So castor oil was called on to do a lethal job. Suffering, as he was, from acute appendicitis, the last thing on earth the financier should have taken was a cathartic. Not receiving relief, the unfortunate man repeated the treatment the next day. Finally after a forty-eight hour delayed diagnosis, he was rushed to the hospital where he died of peritonitis a few days later. Prompt surgical attention, which was the thing he needed most and which was just around the corner from his own home, he rejected. Apparently to him there was nothing like the advice of a refrigerator salesman where appendicitis was concerned.

While adults who become victims of parlor treatment deserve the utmost sympathy, where innocent children are involved the situation becomes downright criminal. A boy twelve years of age noticed a pimple on his wrist. A friendly neighbor of the mother suggested a salve. The suggestion was promptly adopted. A few days later, red streaks shot up the arm, accompanied by pain. When the self-admitted healer next door was consulted, that kind lady made light of the situation and advised hot water applications. Two days later the little patient was suffering with agonizing pain, and the mother and father, at last duly disturbed sent for a physician, who lived exactly two blocks away. Systemic blood poisoning, with its start in an insect bite, had irrevocably asserted itself, and parlor health claimed another victim.

Thus a sad paradox exists. With medical cen-

ters developed to a high degree of efficiency, with trained researchers discovering new remedies and methods of conquering disease, and with an amazing, almost unbelievable progress in medicine, surgery and the diagnosis of disease in the past thirty years, many persons with an incredible arrogance go among their neighbors offering and receiving advice on bodily ills, health, food consumption and allied subjects. In short, parlor health is no longer a joke; on the contrary, it is a definite menace to life, liberty and the pursuit of happiness. At best it is dangerous, at worst murderous.

In this light, medicine more than ever before is a career of public responsibility. It is the duty of the medical profession to extend medical knowledge, to elevate the standards of medical education, to encourage the enactment and enforcement of just medical laws, to promote friendly intercourse among physicians and to direct and enlighten public opinion on the great problems of medicine, so that the profession will become more capable and honorable within itself and more useful to the public in the prevention and cure of disease and in prolonging and adding comfort to life. The service rendered by physicians infiltrates with its influence the destinies of individuals and families, and in the aggregate the destinies of the communities and the nation.

Medicine must be actuated by lofty principles. Medicine is the trustee of society in the care of the sick and injured; its policies must always be governed by this fundamental fact. The good of society must be the sole aim of its public policies and the good of the patient the first consideration in the relations between physician and patient.

Great things have been accomplished in medicine in the last half century. The span of life has been increased from thirty-five to fifty-eight years. Our people owe the medical profession a debt of gratitude that they seem little inclined to pay. In the past fifty years, no science has made more progress than has medicine. Wonderful discoveries have been made in diagnosis and treatment. Many times our fads and fallacies have been stepping stones to something better. The history of medicine is a story of outlived fashions. An eminent teacher has said: "Hard and conscientious work, accurate observation, sound reasoning, a mind free from obsessions and superstitions, a firm belief in the possibilities of medicine as an art and as a science; these are the things that raised medicine to its present greatness; these are the things that will carry it onward, always."

THE PRESIDENT-ELECT'S ADDRESS* SOME METHODS OF STIMULATING MEDICAL PROGRESS IN IOWA

F. P. McNAMARA, M.D., Dubuque

For nearly a year I have been puzzled as to why the Iowa State Medical Society selected me, a pathologist, to be your next president. While somewhat in the dark as to your real reasons, I wonder if I am not right in believing that it was because you still recognized pathology as an integral and fundamental branch of the practice of medicine and if it was not the expression of a desire in the collective subconscious minds of the House of Delegates to return to fundamentals? Whether I am right in these beliefs or not, rest assured that the honor you have conferred is deeply appreciated by me and that my appreciation is shared by the other pathologists of Iowa.

Even cursory consideration of the last decade indicates that it was one of great mental confusion. Indeed we are not far wrong in classifying it as a condition of mild insanity. From a state of national euphoria in which everyone believed he would become a millionaire over night, we were plunged, on that fateful day of October, 1929, into a state of catatonic melancholia from which there seemed no recovery. Without an exact diagnosis being made, all proved methods of overcoming our difficulties were cast aside and refuge was sought in various quack remedies and panaceas. "Stifle enterprise," "work less," "it is unpatriotic to save," "spend ourselves rich," and "the government will take care of us," became the slogans of the times, replacing those which had enriched American life in the past; "develop new enterprises," "work harder," "be thrifty," "live within your income," and "I will not be a charge on the county." Until we as a nation return to these traditional and homely virtues which apply to nations as well as individuals, there can be no true and lasting security, either physical or mental. This statement is made with a full realization that during the last ten years progress has been made in overcoming some of the inequitable and often unfair practices which had crept into our national life.

As the full effects of the depression were felt, it was probably inevitable that the medical profession would be the object of attack. Fifty years ago, Bismarck offered state medicine as a sop to the German masses who were in a state of political unrest because of poverty and high taxes. For years in this country, politicians tried to control the votes of those who required county aid

because these votes often kept the politician in office. During the last decade and for the first time in our history, these voters were organized on a national scale, and because of the numbers concerned, for a time represented a threat to the maintenance of our form of government. Therefore, because the retention of power demands that politicians constantly promise more and more, it was inevitable that they should consider offering "state" or "socialized medicine" and usually designating it as "free medical care." Apparently to the politically minded, money obtained by taxes and services purchased with it are always "free". Probably not all those who have been prominent in the discussions concerning medical care in the last few years were of the political type pictured. Undoubtedly many of them were entirely sincere in their desire to improve the health of the nation and the care of the sick. Why then did they not take the medical profession into their confidence before legislation was formulated? Surely the past record of the American Medical Association and its component societies in promoting improvement in medical education, medical licensure, public health and in the private and hospital care of the sick, justified more consideration than was granted before drastic laws were drafted. If the medical profession had been given due consideration, it is evident that much time would have been saved, many errors avoided and a more judicial attitude toward the problem of the nation's health would have been fostered. When the immensity of the problem which primarily is not medical but one concerned with poverty and ignorance, is considered, certainly such an attitude is obviously desirable.

Carlyle tells us "The greatest of faults is to be conscious of none." Perhaps we as a profession were not without fault in the development of the uncooperative and sometimes antagonistic attitude of many of those fostering health legislation. Were we not very complacent and even smug in our reverence of the status quo? Had we not become too wrapped up in our job of taking care of the sick? Had we not as the most highly educated group in the community, been somewhat remiss in our duties as citizens and in assuming leadership in directing public opinion? Were we not silent observers rather than resolute workers in attempting to solve the social and economic problems that were all too evident? We knew that the environmental factors of poverty, malnutrition, bad housing, faulty clothing and lack of facilities for reasonable recreation were important in producing ill health and sickness but did we really do anything constructive about them? Let us hope that recent events have taught us to put

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our own house in order and that besides being faithful members of the greatest profession, we must also assume the full duties of citizenship in the greatest country in the world.

The discussions in regard to the medical care of low income groups have occupied much of our time in recent years. There are some indications that the American people have retained their sanity concerning the subject. It was never as pressing a problem in most parts of Iowa as in the metropolitan centers. Therefore, it will be given only scant consideration at this time. Judging by the reports of the councilors and deputy councilors of this Society, the indigent and most of the medically indigent in Iowa are receiving good medical care gratuitously or at a cost which the counties are able to pay. In the great majority of counties, there is a fine cooperative spirit between the supervisors and the county medical societies which bodes well for the future. The hospitals of the State University of Iowa are very efficiently caring for the unusually large number of indigent persons. Under the present commissioner, our department of health has really assumed its true rôle in the development of a constructive health program for Iowa. In addition to its main function, the prevention and control of disease, it is now giving invaluable aid in the treatment of syphilis and pneumonia occurring in the low income groups. The development of prepayment plans for hospital care undoubtedly will reduce the financial shock of unexpected illness at least for those thrifty enough to take advantage of them. In spite of these aids, there will still be some unable to pay the costs of serious illness. A few states are experimenting with prepayment plans for the costs of medical care for such groups, and our Medical Economics Committee is making a study of their effectiveness. In due time, large and responsible groups who may desire this type of service, and who recognize the necessity for the freedom of the doctor from any form of domination, will be able to obtain it. The fact that during this difficult period there were no instances in Iowa as far as I know, in which patients were unable to obtain medical care, is certainly an unanswerable argument as to the unselfish devotion to duty of the rank and file of the medical profession. It should go far to correct the belief of some laymen that our only interest is in our own welfare and that we have no sympathy for plans to reduce the burden of the cost of sickness. Because of my faith in the ideals and altruistic purposes of the medical profession and in the fairness of an enlightened American public, there is no doubt in my mind as to the ultimate solution of these problems. Rather let us now consider

some methods by which we can improve the quality of medical care in Iowa.

The American Medical Association and this Society depend for their strength upon the county medical societies. For various reasons, but largely because many members feel they can only learn from nationally famous persons, meetings of the county societies, which to a large extent depend upon local or nearby talent, are often neglected. This situation has led to a definite weakening of the county units. Because the meetings are poorly attended, the social contacts and the resulting stimulation so essential to the medical man, are lost. Many members become unfamiliar with the progressive movements, either scientific, educational, social or economic, of the county society and of the state or national societies. Because of their lack of understanding of the objectives of these activities, such members are often uninterested if not actually biased critics of them. Furthermore, the natural instinct of every young graduate to investigate some scientific or cultural phase of medicine is stifled and progress is inhibited. While there are many corrective factors involved, I would especially point out the necessity for the older and more successful members to encourage the younger men by kindly advice and generous appreciation of their efforts. In addition, the officers of each county society should endeavor to have every eligible doctor become a member; to give much thought in arranging instructive meetings and to make special efforts to get a full attendance at all meetings. The stimulation of hearing national authorities is fully appreciated but the value of such a stimulus is largely lost unless it results in mental effort on the part of the listener. It should not be forgotten that the ability to maintain the interest of the membership of a properly functioning county society can be very stimulating and will be entirely adequate to prevent mental stagnation in most of us.

Of only slightly less importance than an effective county medical society are properly conducted hospitals. In 1939, the American Medical Association registered 73 general hospitals and sanatoriums and 28 related institutions in Iowa. Of these only 36 have met unconditionally the minimum standards of the American College of Surgeons. Eight of the 36 are state or county tuberculosis sanatoriums, veterans, army or school hospitals. Therefore, Iowa has only 28 general hospitals that are fully approved. A further analysis shows that for 1939, the general hospitals, exclusive of those of the State University of Iowa, had a total of 138,276 admissions. Of these 62,554 were admitted to the approved and 75,722 to unstandardized hospitals. This is not a situation

which the medical profession of the state can view with complacency. I am familiar with the various criticisms of the hospital standardization movement. In essence they are objections, by us as individuals, to being subjected to any form of discipline, especially by an organization to which most of us do not belong. In answer to such objections it would be well for every doctor to remember that the need for standardization of our hospitals had been promulgated as long ago as 1910 by members of the American Medical Association. It was recognized that the mere registration of hospitals, often without any great study as to their qualifications, was not adequate. It is to the credit of the American College of Surgeons, and incidentally its members are also members of the American Medical Association, that this sentiment was crystallized into action. This has brought about the notable improvement in hospital service which has occurred in the last twenty years. It is the basis of future improvement and should receive the active and wholehearted support of every member of the medical profession.

Another phase of the hospital situation which should be considered is in regard to what constitutes a hospital. As far as I know, there is nothing to prevent any individual who so desires from opening a hospital in Iowa. In some small communities there are one, two or more hospitals. While there are exceptions, in many instances these institutions have no standards as judged by the modern qualifications of what really constitutes a hospital. Stated very briefly, a hospital should have the necessary physical equipment to house properly the different types of sick patients in order to prevent cross infections, and it must be fireproof. The medical and nursing staffs must be adequate to guarantee reasonably high grade medical, obstetric and surgical care. The medical staff must be organized and must function so that the care given every patient approximates that of the combined medical and surgical knowledge of all its members. Complete, carefully compiled, clinical records should be made of every case and these should be filed and indexed so as to facilitate study. Another objective of the staff is constantly to promote better medical care, through analyses of results and the scientific consideration of all cases in the hospital. In order to attain its full effectiveness, the medical staff should include all ethical members of the local medical profession. Thus the modern hospital can and should be a source of continuous postgraduate education. Recently the Commissioner of Health reported to the Surgeon General of the United States that there was no immediate need for more general hospitals

in Iowa. Probably if the Commissioner had been asked he would also have stated that there was need for the elevation of the standards of many of our hospitals. Under present conditions, the medical profession should voluntarily work to bring about such improvement. They should also educate their respective communities as to their responsibilities regarding hospitals. The time is past when the burden of financing a hospital can be left to individuals or groups of individuals; it is a problem for the whole community.

Other subjects which should be mentioned are the various health or educational programs promoted by this society, or at times by some of the county societies. Such projects are usually given only after due consideration and with the full approval of the officers and committees of the respective societies. Having been so approved, they should have the support of all members. At times some members apparently do not recognize this fact and belittle the programs, if indeed they are not frankly antagonistic to them. In some instances they give only slight cooperation to the men and women who act as sponsors of a particular project. Thus the dignity of the profession is lowered and an unfavorable impression is left in the minds of the lay public. For the continued promotion of better health conditions, an enlightened public is essential. The least any member can do, is to encourage these health movements by courteous and wholehearted cooperation with lay men and women who desire a better understanding of matters concerned with health. If there are objections to any particular program, methods of correcting them are available within the councils of the society concerned. Discussions of them with laymen are fruitless and are a form of "washing our linens in public," which is undesirable if not unprofessional.

For several years we have been on the defensive, largely because of politically inspired propaganda. Our critics have been outspoken in regard to the inefficiency of our work. Let us see how efficient our critics are in performing some of their functions. They promised a reduction in the cost of government and gave us the greatest debt in our history; annually, they talked of the need of economy and gave us bigger and bigger deficits; they estimated the income and outgo of government money and each year found they had made poor guesses; they promised us security and gave us the greatest sense of insecurity ever felt in this country. I might go on but the picture is all too clear to everyone of us. We can only wonder what our position would be if we were as inefficient in caring for the sick as the agents of the government are in managing the affairs of the country. It

is high time that we take the offensive and inform the American people of the true character of the medical service that has been given in the past and of the means and methods for bringing about improvement in the future. To do this effectively this society and county societies must be alert to the health problems of their communities and they should assume the leadership in overcoming them.

In conclusion, medical science has made greater advances since 1900 than in all previous human history, and the last few decades have been termed the age of medical enlightenment. Moreover, the effective use of our knowledge in overcoming many diseases has resulted in great changes in medical practice. Increased efficiency in the diagnosis, treatment and prevention of disease has enabled us to salvage much human life. Today, partly because of this and partly because of changes in the life habits of the American people, mental disease, the degenerative diseases and cancer bulk large in medical practice. Furthermore, through our educational efforts the nation is health conscious. Our people expect more than the care of acute illness; they want more prevention not only by specific means, but also by such general measures as improvement of the racial stock, better nutrition, better living and working conditions, and by more adequate recreational facilities. Perhaps they are unconscious of it, but they also need training in healthful habits of living; in how to utilize their free time; in what are the real values of life; in a word, how to live and what to live for! This represents a broad educational program and can come not by violent revolution but through intelligent evolution. Because of its very nature, it should be obvious that it can never be forced on any people. It can be brought about only through education and from a profound sense of Christian, public service and of true patriotism. It is a challenge to all the people of this, the most blessed country that ever existed. Because of our scientific knowledge, our understanding of human nature, our charity, our devotion to duty and our ideals, we of the medical profession are preeminently equipped to assume leadership in accepting the challenge. Within our county, state and national organizations, we have developed the necessary mechanisms by which we can solve the problems involved. The means are at hand for substantial improvement in the health of the nation. If fully utilized, it is quite possible that the next few decades may be known as the age of health. This desired aim can be accomplished by an enlightened public, cooperative governmental agencies and an independent medical profession. It cannot be brought about by a medical profession subservient to any political group.

THE PRESENT STATUS OF THE KNOWLEDGE OF WHOOPING COUGH

EDWIN N. HESBACHER, M.D., Des Moines

Many people consider whooping cough to be merely an insignificant childhood disease, but the medical profession realizes that this disease is a very serious problem. Whooping cough has been found to be one of our most deadly diseases, especially to children under five years of age.

A study of the incidence of measles in a limited population group in Michigan showed that from 1923 to 1927 diphtheria killed a few more children than pertussis. For a period of fifteen years pertussis led as a killer of children under five years of age. It was found that approximately thirty per cent of the deaths due to communicable disease were caused by pertussis.¹ A survey in thirty-two cities from 1924 to 1928 showed an average death rate per 100,000 people of 5.22 with a case fatality rate of 3.13 per cent. A survey of the same cities from 1929 to 1933 revealed an average death rate per 100,000 of 2.0 with a case fatality rate of 1.09 per cent. The population in these cities was 21,904,758 in 1934 and 26,219,638 in 1933. The deaths numbered 5,820 in the first quinquennium and 2,469 in the second quinquennium. The cases reported in the first quinquennium numbered 105,699 and in the second 224,606.²

Dr. Emerson states that the above results are probably due more to the falling birth rate with the resultant effect of age grouping of the population, upon sizes of families, and the age at which children are exposed to the disease, than to any specific factor in private and public practice of medicine, for example, active or passive immunization of susceptible individuals, better treatment of sick, or more effective isolation and other administrative measures directed toward control of pertussis. Case fatality may have been affected by better hygienic conditions in the home, antirachitic, and other nutritional advances in infant and child feeding. More general and skilled home nursing of patients during isolation and other factors have benefited children under five years of age.

The following difficulties are encountered in making an analysis of the trends of whooping cough.

1. Few, if any, health departments tolerate, much less require, the initial report to include the age of the patient. There should be special tabulations of age up to five years, and five year groups up to fifteen years of age.

2. Incompleteness of reporting which varies from approximate completeness to about five per cent of estimated cases.

3. Routine departmental procedures in establishing diagnosis and recording of the susceptibility, exposure and subsequent history of infection in households where other children than the reported patients are living, are neither uniform nor adequate.

4. A study of the relative values of isolation periods of different lengths, of inoculation intended to prevent, or of therapy designed to modify the course of the disease should be made.

Due to this lack, it is necessary to establish elaborate structures to check the advances.

Let us analyze our present knowledge of whooping cough and the measures we have for controlling the disease. We know the agent and mode of transmission, that the inoculation period is usually two weeks, that the greatest communicability is in the early stages of the disease with a high per cent of the patients remaining infective during the first three weeks after onset, and that most of them are non-infectious by the end of the fifth week. Those not having the disease can be assumed to be susceptible. Ninety per cent of children under five years of age without a record of the disease will contract whooping cough when intimately exposed. We know that recovery usually confers an immunity, and that materials are available for active immunization, passive immunization and treatment. Some of these have been shown to be of definite value.

In 1906 Bordet and Gengou reported that the causative organism in whooping cough is *Bacillus hemophilus pertussis*. Recently other organisms have been found to be associated with clinical whooping cough. *Alkaligenes bronchisepticus* has been isolated from cases of paroxysmal coughs. *Bacillus parapertussis* has been isolated by Kendrick and Elderling³ in clinical cases of whooping cough. It has been found alone, but accompanies the pertussis bacillus in 95 per cent of the cases.

Many laboratory procedures have been advocated for use as an aid in the diagnosis and control of whooping cough.⁴ The following are those most commonly used: the lymphocyte count; the direct smear of sputum, with isolation of the *Bacillus pertussis* by plating the washed sputum; the cough plates of Mauritzen; complement fixation tests; agglutination reactions; skin tests and opsonin tests. Unfortunately these procedures are not available to the average man in the practice of medicine. The lymphocyte count is the only practical method for general use. In the early stages of the disease the blood smear will show a shift in the lymphocyte count. A definite change will occur over a three day period. The direct smear of sputum may be an aid, but is not of great diagnostic value. Influenza organisms give the same ap-

pearance as pertussis organisms and may confuse the diagnosis. The isolation of *hemophilus pertussis* is of special value in the early stages of the disease.⁵ It will also aid in establishing a diagnosis in the cases with a persistent cough. The organisms should be recovered from the secretions of the trachea, bronchi or lungs. Only mucus from an infected area can give a positive culture. The procedure of obtaining a deep throat culture or direct tracheal culture can be done only by a specially trained staff in hospitals and clinics. The use of the cough plates has been of great value where they are available. The specimen is obtained by holding the plate about four or five inches in front of the patient's mouth at the time of an expulsive cough. The examination is then made at the laboratory. Slide agglutination tests are made from organisms obtained by suspending a colony or group of colonies in a drop of saline on a slide. A loopful of this suspension and a loopful of *hemophilus pertussis* antiserum diluted one to ten will show almost immediate agglutination when compared with the suspension mixed with serum. Complement fixation tests and agglutination tests, performed with recently isolated cultures, maintained on suitable media, have been found to be equally positive with serum collected from the patient after the height of the disease, and after adequate vaccination with a potent vaccine. Investigation has been carried on to determine the possibility of a skin test as a determination of immunity.^{6 and 7} The final results obtained to date have shown no skin test of value as a procedure for this determination.

Due to the fact that these procedures have shown no practical value, Kendrick, Gibbs and Sprick⁸ decided to apply the opsonocytaphagic reaction in pertussis. This test is applicable for use in infants as well as adults, because it requires only 0.1 of a cubic centimeter of blood. The test depends upon the phagocytosis of the organisms by the blood of the individual examined. The number of organisms found within the cells on a stained smear is counted and the reaction is recorded as weak, moderate or strong. Studies of this procedure showed the following results. It is of no value in early diagnosis, but may aid in the diagnosis of a prolonged cough. There is no value in determining previous infection unless of recent occurrence. In the infants the tests are easily run. It is possible to determine the immunity response. The opsonins were found to increase both in the vaccinated class and the children with the disease. The reaction reaches its height about two months after the last injection of vaccine and after the patient has had the disease. A negative reaction was generally found to occur in the newborn

Bradford⁹ substantiated these findings of Kendrick in further investigation. He, however, found that the children of a mother with a high titre showed some phagocytosis.

The work of greatest interest has been that done in the field of active and passive immunization and treatment of pertussis. The field of active immunization was first entered by Sauer.¹⁰ His work extended from 1924 to 1938, and is divided into three groups; the private group, the Evanston Health Department Clinic group and St. Vincent's epidemic of 1935. The work was done on children from eight months to three years of age. The

OBSERVATIONS FROM SAUER'S REPORT ON
PERTUSSIS IMMUNIZATION

Group	Year	Vac- cinated	Non-Vac- cinated	Frequency of Attack			
				Number		Per 1,000	
				Vac- cinated	Non-Vac- cinated	Vac- cinated	Non-Vac- cinated
Private	1933	1001	560	16	105	15.98	187.5
Evanston Health Dept. Clinic	1934	1377	1100	10	129	7.2	117.2
St. Vincent's Epidemic	1935	75	70	6	52	80.0	742.8
		2453	1730	32	286	103.18	1047.5

Evanston Health Department whooping cough contact clinic has been held semi-annually since 1924. A total of 1,377 infants and young children have been immunized. To date ten of the vaccinated have developed pertussis. During the last decade the average yearly city total of reported cases was 334. In 1936 only 91 cases occurred which was the lowest incidence at any time. Of these cases only one patient had been vaccinated at the clinic. The remaining ninety patients had not been vaccinated. One hundred thirty-one cases occurred in 1937, principally in negro children whose parents were reluctant about allowing children to be vaccinated. In 1938 prior to October 1, only 46 cases had occurred which is the lowest on record.

The experiment of Doctors MacDonald¹¹ on their four sons is of interest. None of the boys had previously had whooping cough. Two of the boys were vaccinated by the Sauer's method with fresh hemophilus pertussis vaccine. A filtrate of a recently isolated culture was instilled into the nose and throat of each of the boys. The boys were observed for eighteen days with no changes occurring. Following this 140 bacilli from the same culture were instilled into the nose and throat of each boy. The two vaccinated boys did not develop the disease. The non-vaccinated subjects began to cough within a week and continued to exhibit the characteristic symptoms of whooping cough.

That immunization is a valuable procedure is further shown by the following results. A study has been conducted in the Stanford University School of Medicine Children's Clinic since 1935.¹² A report of this study on 206 vaccinated patients and 181 controls was made in 1938. The crude attack rate was 3.9 per cent in the vaccinated group, compared to 16 per cent in the control group. At the University of California¹³ children over five months of age were observed. A group of 272 children with full doses of vaccine was compared to 256 non-vaccinated controls. The vaccinated group had 42 exposures with seven attacks as compared to 71 exposures in the non-vaccinated group with 62 cases, or attack rates of 2.5 per cent and 24.7 per cent respectively. Silverthorne and Frazer¹⁴ observed a group of children for a five year period prior to 1938. This group consisted of 747 vaccinated and 161 non-vaccinated individuals. There were 41 direct contacts in the vaccinated group and 27 direct contacts in the control group. Only two cases occurred in the vaccinated group whereas 23 cases developed in the control group. The observations were made by public health nurses and private physicians.

A study of the relative value of vaccine was made by Siegel.¹⁵ He studied Sauer's vaccine, New York Health Department vaccine, Provitsky old strain and three stock commercial vaccines. In general he found that characteristic whooping cough developed in 3.6 per cent of the vaccinated cases and in 4.2 per cent of the controls. No cases occurred in the group immunized by Sauer's vaccine and the Health Department vaccine, but the exposure rate in this group was lower. The two best controlled studies were those of Doull in Cleveland, Ohio, and Kendrick in Grand Rapids, Michigan.

The important points in Doull's study¹⁶ were: the smooth strain of the organism was used, the children were selected between the ages of six and eighteen months, children were accepted who had definitely not had whooping cough, the children were selected in families that had one older child who had not had whooping cough, if they failed to come in four weeks the nurse was sent out to see them, children over fifteen months of age were visited once every four weeks, each day the reports were checked against the names and addresses on file, and each notification was checked to be sure of the correct diagnosis. The work was conducted on 483 vaccinated children and 496 children held as controls. The incidence of the disease was checked by twelve week periods. Forty children were removed from the inoculated rolls and 61 from the control group. In the vaccinated group 422 children received five doses of vaccine, but 30

of these were lost from observation, leaving a total of 392 of the group. Fifty-four of these children were attacked, giving an attack rate of 13.8 per cent. There was also a group receiving from one to three treatments. The attack rate for this group with incomplete treatment was 13.8 per cent. Doull was unable to show any preventive effect, but a definite decrease in the severity of the disease in the vaccinated groups.

Pearl Kendrick¹⁷ conducted a similar study in Grand Rapids, Michigan, over a period of 44 months. The basis of the study was as follows: children were selected between the ages of eight months and four years; the children were those presenting themselves at the immunization clinic; no child was accepted who had previous whooping cough or vaccine; the children were admitted to the study following the third injection of serum; the recorded follow up was obtained by the home visit of the nurse; and daily records were checked with reports of the Health Department from cough plates. The final analysis of the study covered 4,212 children; 1,815 were vaccinated and 2,397 were used as controls. There were 400 attacks of which 52 occurred in the vaccine injected group and 348 in the control group. A correlation of the known exposures and the subsequent attacks revealed that 12.8 per cent of all the types of exposures in the injected group were followed by pertussis, compared with 68.4 per cent in the control cases. If only a definite exposure in the child's own household were considered, the per cent of secondary attacks for the two groups are 3.4 per cent and 89.4 per cent respectively. The pertussis attacks which occurred in the vaccinated group were definitely less severe than those in the control group. From these foregoing studies we can conclude that there has been a definite value in active immunization. Many of these children are completely protected and those who develop the disease suffer only a mild type of case.

Many of our children have not had the advantage of immunization and contract the disease. Various therapeutic measures have been offered for prophylaxis and treatment. Bradford¹⁸ has obtained good results by the use of 10 cubic centimeters of human convalescent serum and 20 cubic centimeters of immune adult blood to be given before catarrhal symptoms appear.

Meador¹⁹ recommended the injection of ten to fifteen cubic centimeters of pooled convalescent serum within the first week of exposure. He was able to protect 72 per cent of exposed infants with the serum, whereas only 30 per cent of the control group did not develop the disease. McGuinness, Stokes and Mudd²⁰ have developed a lyophile serum. A pooled serum is dried in vacuo. This

dry, yellow, porous material, lyophile, is then re-dissolved in sterile, distilled water just before use. The injection is usually of double strength. This material was used on twelve infants between the ages of one and seven months, exposed to an early fatal case of whooping cough. The lyophile serum was then injected on the twelfth day after the initial exposure. Eight of the infants received ten cubic centimeters of the serum and four received twenty cubic centimeters. None of the twelve developed pertussis. A child ten years of age was also given twenty cubic centimeters of lyophile serum with complete protection.

Due to the fact that convalescent serum had proved a definite value in giving passive protection, interest was then placed on various forms of hyperimmune serum. Hyperimmune serum is made by injecting individuals who have had whooping cough with a course of vaccine. The serum from these individuals is then used. Jundell vaccinated parents who had had whooping cough in childhood with three injections of vaccine at three day intervals. The results were good when serum was given during the incubation period or early catarrhal stage.

McGuinness, Bradford and Armstrong²¹ studied the use of hyperimmune serum in prophylaxis and treatment of pertussis. The donors were young adults, between the ages of twenty-one and thirty years, who had previously had whooping cough. These individuals were then given three complete series of Sauer's vaccine of ten billion organisms at four month intervals. The resulting serum showed both high agglutination titres, 1:5,000 and high opsonocytophagic indices. The following is an analysis of the cases observed. In a group of 100 children, six months of age or younger, excellent results were obtained in 32 cases, good results in 31, moderate in 20 and questionable in 14 cases. Three deaths occurred in the group due to bronchopneumonia. The dosage was ten to twenty cubic centimeters, repeated three to four times. A second group of 83 children was studied with the following results.

WHOOPIING COUGH PROPHYLAXIS

	No Disease	Very Mild	Mild	Moderate
Intimate Exposure (continuous) 44		5	3	3
Intimate Exposure (short duration) 5		5	0	0
Casual Exposure 16		1	1	0
Totals 65 (78.3%)	11 (33.3%)	4 (4.8%)	3 (3.7%)	

Very mild cases exhibited no whooping or vomiting, a mild cough and short duration. The majority of the patients received two injections of serum five to seven days apart. The average dose was ten cubic centimeters to young infants and

twenty cubic centimeters when the exposure was intimate and in older children. Of the 83 cases, eighteen children contracted whooping cough, but only seven developed a whoop and vomiting. The other eleven cases might have passed as missed cases if they had not been under close observation.

McGuinness, Stokes and Mudd²⁰ also developed a lyophile serum from hyperimmune serum. This material was then given to twelve children who were intimately and continuously exposed to children in the family with whooping cough. Previous attacks of whooping cough had been definitely excluded. Of this group six did not develop the disease; three developed a cough which lasted ten to fourteen days, but was not associated with a characteristic whoop; and the remainder developed typical but mild whooping cough.

Cohen and Lapin²² carried out a comparative study of the prophylactic value of Sauer's and Kruger's vaccine, topagen (Mulford), adult blood serum and hyperimmune serum. They report that no effect was obtained by Sauer's vaccine, Kruger's vaccine or topagen (Mulford). The serum obtained from adults was effective in 61 per cent of intimate exposures. In general the patients treated developed modified symptoms. The dosage used was twenty cubic centimeters in infants and forty cubic centimeters in the older children. The hyperimmune serum was found to protect completely two-thirds of the individuals and to modify the disease in the remaining one-third of the group. All of these cases had intimate exposures. Convalescent serum was found to be the most effective. Doses of fifteen to twenty cubic centimeters were used in infants and forty cubic centimeters in the older children. They felt that failure in obtaining protection was due to the dosage being too small.

It can thus be seen that from the above materials available we have within our reach means of rendering whooping cough a mild disease of childhood.

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INTRAVENOUS ANESTHESIA AND ITS USES

FRANK J. PIEKENBROCK, M.D., and
PAUL F. OLSON, M.D., Dubuque

Intravenous anesthesia has a well defined place in surgery. It is becoming the anesthetic of choice in operations of short duration that do not require muscular relaxation. It does not, however, replace gas anesthesia for major surgery. Success in its use depends on an understanding of the indications and on proper administration.

We are reporting a series of seventy-eight cases in which intravenous anesthesia was used. In most of these cases the anesthetic was administered by one of us (F. J. P.) and the surgery performed by the other (P. F. O.). There have been no complications and no deaths. It is not the purpose of this presentation to review the seventy-eight cases in detail, but rather on the basis of that experience to indicate the proper selection of operations for its use and to outline the technic and safeguards to be followed in its administration.

Regarding the administration of intravenous pentothal sodium anesthesia, it is first necessary to understand and appreciate the nature of this type of anesthetic agent. The action of pentothal sodium is essentially the action of a barbiturate given intravenously in excess of the usual sedative dose. In progressive sequence the action is a rather rapid state of amnesia during which there is a subconscious voluntary response followed by deep sleep with more or less muscular relaxation. The first toxic effect noted is the depression of the respiratory center with slow and shallow respirations. In our clinical experience we have not gone beyond

this initial respiratory depression and are not qualified to speak of later and more grave toxic effects.

The signs of anesthesia differ greatly from the ordinary inhalation anesthetic agents. The action is more rapid and not unpleasant, producing drowsiness followed by normal sleep, the excitement stage being absent. There is a period at the onset of administration during which the patient has a suspension of higher cerebral activity. During this stage he seems oblivious to surroundings. However, he will frequently respond to questions and react to painful stimuli to a variable degree. There is amnesia during this stage and it may well be utilized for brief surgical procedures. We mention this with purpose since we feel that anyone who is not familiar with intravenous anesthesia of this form will do well to limit its use to this type of minor surgery until he is familiar with the sequence of anesthetic signs. Many new anesthetic agents have fallen into undeserved disrepute because of too wide application. The fact that an anesthetic of this type has been used successfully in major abdominal surgery by those thoroughly familiar with its action should not be an invitation to the inexperienced so to utilize it unless they have mastered its use in the more suitable and lesser surgical procedures. Experience in handling the drug will gradually widen the indications for its use. For any but minor procedures of short duration, we feel that the preliminary use of morphine sulphate is an advantageous adjunct to this form of anesthesia. The great majority of the cases in our series required less than twenty cubic centimeters of the anesthetic solution for adequate results. However, much annoyance can be avoided in the exceptional case by having sufficient solution on hand in case it is needed.

One gram of pentothal sodium is dissolved in twenty cubic centimeters of sterile distilled water. The solution should be clear and it is important to reject any solution that shows cloudiness. The anesthetic state is achieved and maintained by repeated small injections of the drug. We have found that it is advisable first to inject three or four cubic centimeters of the solution slowly. The patient is asked to count out loud during the induction stage. After this preliminary amount has been administered, it is advisable to wait a short while before proceeding to the stage of deeper anesthesia. In this way any abnormal sensitivity to the drug can be detected and further administration may be guided by the preliminary effect. Usually the patient will continue counting after this amount has been administered. However, if asked whether he is "getting sleepy" he will usually nod his head in the affirmative and then continue counting, showing a definite limitation of the sen-

sorium. If, after the administration of the first amount of solution, there are no undesirable effects, such as depression in the respiratory excursion, we again give one or two cubic centimeters of the drug and then wait for a short interval until by this step method we have reached the proper depth of anesthesia. The anesthetic state is then maintained by interval injections of one cubic centimeter of the drug. It is necessary to anticipate the delayed response from each intravenous injection of the anesthetic agent so as to avoid any undesirable cumulative effect. By this step method of administration we are able to see the full effect of the amount administered before giving more of the solution. After some experience, the rate of injection will naturally become constant and anesthesia may easily be maintained at the proper level.

Several methods are used for watching the respiratory excursion. One method is to attach a wisp of cotton to the upper lip so that the depth of respiration may be detected by the movement of the cotton. In our experience, however, we have found the administration of oxygen a much better method since it serves a double purpose. The inhalation of oxygen during the anesthetic seems to lessen greatly the toxic effects of the drug and make the recovery of consciousness more rapid. In addition, the movement of the rubber bag attached to the oxygen inhaler is the most sensitive method of determining the rate and depth of respiratory movement. It is well to realize the limitations of pentothal sodium anesthesia for relaxation of the muscles, and we would caution against going beyond the zone of safety in order to accomplish muscular relaxation. It is also important to remember that during an operation there is somewhat of a balance between the depth of anesthesia and the amount of pain stimulus received from the operative procedure, so that the stage of anesthesia may be quite satisfactory while the pain stimulus exists, but if the operation is terminated suddenly there may be an imbalance which will throw the patient into a much deeper stage of anesthesia than is desirable. This difficulty can be eliminated by cooperation between the operator and the anesthetist so that the end of the operative procedure may be anticipated by the latter.

If left to regain consciousness without any post-anesthetic medication, the patient will settle into a rather deep normal sleep from which he will gradually waken depending on the amount of pentothal sodium that has been administered. Following the termination of the anesthetic, it has been our custom to inject three cubic centimeters of metrazol intravenously. We have found metrazol to be a most efficient denarcotizing agent, and by its use the anesthetic state will be terminated

promptly and any undesirable depression avoided. The results obtained from the postanesthetic injection of three cubic centimeters of metrazol have been most gratifying.

Intravenous anesthesia has a broad but definitely demarcated field of usefulness. Its advantages lie in the ease of induction and in the absence of postanesthetic nausea. It is the preferred method of obviating pain while a brief surgical procedure is to be carried out. It should not, however, be employed where a deep or prolonged anesthesia is expected or where a marked degree of muscular relaxation is required.

Of the seventy-eight intravenous anesthetics which we are reporting, approximately half were administered in the dressing rooms at the office and half in the operating rooms at the hospitals. The following are some of the procedures for which it was used.

In general surgery, intravenous anesthesia was used for performing biopsies, draining abscesses, suturing lacerations and treating burns or painful wounds. It was used only once for a laparotomy and its use in abdominal surgery is not advocated.

In urology, intravenous anesthesia was employed for circumcisions in adults, for dilating painful strictures, for cystoscopic examinations of inflamed bladders, for removing foreign bodies from the bladder, for removing and fulgurating bladder tumors and for catheterizing ureters when painful conditions existed. Intravenous anesthesia does not afford sufficient relaxation for extracting ureteral stones or for performing prostatic resections except in small prostate glands. It has, however, proved very useful in supplementing spinal anesthetics in the occasional case when that anesthetic wears off unexpectedly soon.

In gynecology, the intravenous anesthesia has been used for dilatation and curettage, and for cervical operations such as biopsy and conization.

In orthopedics, the intravenous anesthesia has been used for the reduction of fractures about the elbow, wrist and ankle. It is useful to eliminate the pain while fractures are manipulated and reduced but is not to be relied on where muscular relaxation of any great degree is required. It is also useful for the insertion of Steinman pins and for brief orthopedic operations.

In ophthalmic surgery Dr. Lincoln F. Steffens of our group has found it particularly well suited to operations requiring general anesthesia such as enucleation and evisceration. In these cases we feel that it is the anesthetic of choice because by this method the operative field is unencumbered by a mask or other anesthetic paraphernalia and a satisfactory stage of anesthesia can be easily main-

tained. Intravenous anesthesia is, however, not adaptable to surgery of the throat.

To employ intravenous anesthesia advantageously, it is necessary for the surgeon to appreciate the problems of administration. The injections are made in repeated small doses and the response to each injection is not immediate. If the patient shows signs of coming out of the anesthetic state an injection will not instantly render him quiet. The surgeon must not demand a further injection before the first has taken effect because there will be danger of overdosage. Since it is advisable to carry the patient in a state of light anesthesia, the surgeon must be willing to pause in his work occasionally and not be too demanding of a deep and undisturbed anesthesia.

CONCLUSIONS

1. Intravenous anesthesia is used to best advantage in short operations that do not require muscular relaxation.
2. Intravenous anesthesia does not replace inhalation or spinal anesthesia for laparotomies or prolonged operations.
3. The advantage of intravenous anesthesia lies in the ease of induction and in the absence of postoperative nausea.
4. The signs of anesthesia differ from those of gas anesthesia. The technic and safeguards of administration are discussed.
5. The surgical cases in which intravenous anesthesia is advantageous are outlined.
6. Intravenous anesthesia has been employed by the authors in seventy-eight cases without deaths or complications and is regarded by them as a safe and desirable anesthetic.

PLASMA PROTEINS IN SURGERY*

EDWIN S. KORFMACHER, M.D.
Grinnell

Blood chemistry has been a subject of study and observation for many years. Changes in chemistry of the blood have played a very definite rôle in both medicine and surgery. Among the more important of these changes are the fluctuations of levels of plasma proteins. These proteins play a significant part in the outcome of surgical procedures because they are important in the repair processes and in the maintenance of osmotic pressure of the blood.

The plasma proteins may be classified as follows:

- A. Fibrinogen—fibrin.
- B. Albumin.

*From the Department of Surgery, St. Luke's Hospital, Bethlehem, Pennsylvania, where these studies were incorporated into an article submitted as a thesis for a degree.

C. Globulin.

1. Euglobulin.
2. Pseudoglobulin 1.
3. Pseudoglobulin 2.
4. Globulin.

Under ordinary conditions, the composition of the plasma of an individual is relatively constant. The plasma of various individuals may vary, and there is some variation in the same individual during the course of a day. The main difference, according to Cuthbertson,⁸ occurs in the albumin fraction. Salvesen's 1926 data on sixteen normal men are as follows: The maximum and minimum values found for albumin were 5.24 grams and 3.95 grams per 100 milligrams plasma (mean 4.44); for globulin, including fibrinogen 3.18 grams and 1.96 grams (mean 2.58). Peters and Van Slyke²² quote fibrinogen as 0.4 grams to 0.2 grams. The average total protein, albumin and globulin determinations on normal individuals are recorded in the following chart. These include our own estimates on eight healthy individuals:

	Average Protein	Average Albumin	Average Globulin	Albumin Globulin Ratio
Moore & Van Slyke (9 Patients).....	7.1 (6.5-7.7)	4.3 (4.0-4.5)	2.8	1.53
Linder Lundegaard & Van Slyke (8 Patients).....	6.73	4.11	2.61	1.57
Salvesen (32 Patients)....	7.0 (6.34-7.96)	....	....	1.67 (1.26-2.26)
Our cases (8 Patients)	6.80	4.40	2.40	1.83

According to Howe¹³ the concentration of the plasma proteins may vary with the species, age, sex, feedings, physiological activity, environment, and disease and the reaction to infections. Young individuals have a lower proportion of globulin than adults; sex makes no difference. Food apparently has little effect, but water effects a transitory change; loss of water concentrates the proteins. The most marked variation occurs in the body reaction to disease and injury.

The source of the proteins of the blood is still a controversial subject. In 1925, Howe¹³ stated that the origin was practically unknown. In 1927, Komatsu¹⁷ forwarded the hypothesis that both the liver and the muscle partake in the production of blood proteins, the former yielding more of its proteins rich in sulphur while the latter is deprived of more of its proteins poor in sulphur. Fibrinogen is formed chiefly in the liver because it has been found to be low in acute extensive liver injury. There may be other sources of reserve supplies located in the intestines and other tissues. According to animal experiments carried out by

Howe¹³ there is a greater proportion of globulin in liver and kidneys with a predominance of albumin to globulin in rabbit muscle.

The rôle played by the liver in protein metabolism has been studied by various experimenters. In 1918 Whipple¹⁶ and his associates showed that depletion of the protein content of the serum by plasmapheresis is followed by a regeneration of the protein, and that globulin is replaced more rapidly than the albumin. The regeneration of the protein was delayed in animals in which the liver had been damaged before depletion of the plasma. Sawada, quoted by Foley,¹⁰ found a decrease in the albumin content and a slight elevation of the globulin content in animals with hepatic damage. In the hepatic damage following ligation of the common duct Foley¹⁰ and his associates found a decrease in albumin content with an increase of globulin occurring from one to three months after ligation. They also observed to some extent the relation of the intake of food to the alteration of the protein content of the serum. Kerr¹⁶ states that all experimental evidence points to the liver as concerned in maintaining the normal level of the serum proteins.

In 1937 in a resumé of the problem of hypoproteinemia Melnick and Cowgill²⁰ found evidence in support of the hypothesis that there was some specific mechanism responsible for the formation of plasma proteins. They state that this mechanism may play an accessory, if not the primary, rôle in the production and persistence of a hypoproteinemia.

The functions of the various proteins are as follows:

1. Fibrinogen is chiefly concerned with the coagulation of blood. In traumatic injuries Cuthbertson⁸ found an immediate increase in fibrinogen as well as globulin which is related to the process of healing. In similar cases Whipple³⁰ suspected the liver of being the chief storehouse for the material.

2. Globulin serves a variety of functions. It plays an important part in the process of healing. Its chief function is to increase the viscosity of the blood and aid in the maintenance of osmotic pressure. The pseudoglobulins serve as the carrier of antibodies. In immunization to diphtheria an increase occurs in globulin and fibrinogen with a decrease in albumin.

3. Albumin acts as a buffer in the blood serum in conjunction with bicarbonate; a second function is to increase the viscosity of the blood. Albumin probably exerts a greater force than globulin since the smaller molecules of protein are the ones which exert the greater osmotic effect.

In 1922 W. and H. Lohr⁸ noted a rise in the fibrinogen content following aseptic operations.

In addition, they observed a reversal in the albumin-globulin ratio following operations and accidental injuries. Since that time a review of the literature reveals some inconsistency of findings among the many investigators who have been working with plasma and serum proteins in various surgical procedures. However, plasma protein studies are becoming important in clinical surgery and may serve as a guide to prognosis and treatment. With this idea in mind, the purpose of this paper is to correlate laboratory data with the clinical course of various surgical patients.

METHODS

The subjects examined were all patients observed at St. Luke's Hospital in Bethlehem, Pennsylvania. Blood for examination was taken from the antecubital vein and placed in dry tubes for serum, and oxalated tubes for the plasma determinations. The proteins in the serum and plasma were estimated by a modified colorimetric method of Greenberg and supplemented by the falling drop specific gravity method.

In our experiments, a modified Greenberg method as suggested by Johnston and Gibson¹⁴ was used to determine total protein values and the albumin-globulin ratio. This method was decided upon because it gave fairly constant results, checked well with other methods, and was not too technically involved.

In this procedure, the fibrinogen is precipitated with 11.25 per cent sodium sulphate and the other globulins with 22.5 per cent. Albumin and globulins differ mainly in their solubility. Albumins are soluble in water and weak salt solutions and globulins are not. Globulins are salted out by half saturation with several salts such as ammonium and sodium sulphate, while albumins require saturation. The globulins can be separated more or less completely by sodium sulphate of the following concentrations:

Fibrinogen, precipitated by 10.6 per cent sodium sulphate.

Euglobulin, precipitated by 14.2 per cent sodium sulphate.

Pseudoglobulin 1, precipitated by 17.7 per cent sodium sulphate.

Pseudoglobulin 2, precipitated by 21.5 per cent sodium sulphate.

The albumin was precipitated from the globulin filtrate by an acid and redissolved in ten per cent sodium hydroxide. The fibrinogen, total protein and albumin fractions were then heated for ten minutes in an alkaline medium before the addition of the phenol reagent of folin and ciacalten in order to insure a more stable color. The solutions

were then diluted and compared with a standard tyrosine solution in a colorimeter. Globulin is estimated by the difference between the total protein and the sum of the fibrinogen and albumin. In several of the determinations the fibrinogen was precipitated with the other globulins and included in those estimates.

The specific gravity method, or falling drop method, has been used as a supplementary procedure of determining total proteins in several cases. The falling drop method is interesting since it has been developed through a series of evolutionary steps. In 1924, Barbour and Hamilton¹ described a method for the determination of the specific gravity of the blood in which each observation requires only one drop of blood, and less than one minute for calculation. This method was based upon the falling time of a drop of blood of known size over a definite distance, through a mixture of xylene and bromobenzene of a known specific gravity. In 1927 the same authors² discussed the clinical application of their method in the determination of water content of the blood. They determined very acute shifts in water balance such as occur in anesthetic and operative shock. In 1932, Guthrie¹¹ published an article describing his hemogravimeter for the measurement of specific gravities of watery fluids of the body. In 1930, Moore and Van Slyke²¹ stated that there is a fairly constant relationship between specific gravity and total protein content of the plasma. In a series of 118 observations, they found that the maximum deviation of the chemically determined protein content from that of the estimated by specific gravity was 0.6 gram. Other investigators, Weech, et al²⁸ have confirmed the accuracy of predictions based on this formula. They have shown that variations in the albumin to globulin ratio alone do not affect the results to any measurable extent. In 1936 Weech²⁹ and his co-workers in working with dogs found even a smaller degree of deviation. Kagan¹⁵ in a recent article states that an instrument for the accurate estimation of serum protein which has the simplicity of a hemoglobinometer has an obvious place in medicine.

RESULTS AND COMMENTS

Determinations of serum and plasma proteins were made on selected patients at various intervals during their stay in the hospital. These cases are divided into the following groups:

1. Aseptic Surgical Cases
 - A. Hyperthyroid 5 cases
 - B. Gastric cases, especially pyloric obstruction cases 9 cases
 - C. Biliary Tract 10 cases
 - D. Ruptured appendicitis, etc. 6 cases

TABLE 1. PLASMA PROTEIN DATA ON THYROID CASES.

		Diagnosis	Basal Metabolic Rate	Plasma Proteins			Operation
				Total Protein	Albumin	Globulin	
Case 1.—B. C.	White Female—Age 35	Exophthalmus	Before operation +54 After operation +5	9.10	5.55	3.55	Subtotal Thyroidectomy
Case 2.—C. P.	White Female—Age 46	Toxic adenoma, malignancy	Before operation +54 to +68	8.96	6.00	2.96	Ligation only. Deceased.
Case 3.—K. W.	White Female—Age 27	Exophthalmus	Before operation —42 After operation —7	6.00 7.12	3.36 4.04	2.64 3.08	Subtotal Thyroidectomy
Case 4.—E. S.	White Female—Age 54	Toxic adenoma	Before 1st operation —74 After 1st operation —51	7.09 7.53	2.71	4.38	Lobectomy (left) Lobectomy (right)
			Before 2nd operation —82 After 2nd operation —39	6.42 6.90	3.41 3.83	2.77 3.07	
		Toxic adenoma					
Case 5.—T. R.	White Female—Age 33	Exophthalmus	Before operation +43	6.16	3.09	3.07	Subtotal Thyroidectomy

2. Traumatic Surgical Cases

- A. Fractures 7 cases
- B. Severe traumas and lacerations . . . 3 cases
- C. Burns 4 cases

ASEPTIC SURGICAL CASES

A. Thyroid Cases: In this group five patients were studied who were definitely hyperthyroid, having initial basal metabolic rates of +30 or over. The findings are charted in Table I.

Brown and McCray⁵ in a review of the literature on serum protein studies in hyperthyroidism found it both incomplete and confusing. A study of twenty-four patients with hyperthyroidism before and after operation revealed no significant findings. Deusch,⁵ quoted by the same authors, believed that the decrease in serum protein paralleled the severity of the disease and the weight loss. Improvement following surgical therapy resulted in a rise in the serum proteins. Bartels⁴ found a definite relationship to exist between the level of total proteins and the severity of hyperthyroidism. He attributed changes in serum proteins to disturbances in the function of the liver, a rough correlation being found in the level of total proteins and the excretion of hippuric acid used as a test of hepatic function. Operations of two stages were performed if the total proteins were below six grams or if the serum albumin was three grams or less.

The findings in our small series of cases seemed to confirm these observations. The third case, one of exophthalmic goiter, had a low total protein value of 6.00 grams per cent. A subtotal thyroidectomy was performed with difficulty because the patient's general condition was only fair during the course of the operation, and was followed by a stormy convalescence during the first seventy-two hours. Subsequent recovery was uneventful. The fourth case was one of a severe toxic adenoma. The total protein value was 7.09, but a definite reversal of the albumin-globulin ratio was present.

The albumin estimate was only 2.71 per cent. The hippuric acid test showed 2.1 grams benzoic acid excreted in four hours. (Normal excretion 3.0 to 3.5 grams.) The patient's condition at operation warranted only a lobectomy. At the second admission the ratio of albumin and globulin was more normal with a higher albumin value of 3.41 grams. The second operation and recovery were uneventful.

B. Gastric Cases, especially pyloric obstruction cases: Nine patients having a surgical lesion either of the stomach or duodenum were studied. Of the six with either a partial or complete pyloric obstruction, two had carcinomas and four had ulcers situated near the pylorus. The remaining three were ulcer cases complicated by acute or chronic perforation. The plasma protein data of these cases are included in Table II.

The persistent vomiting which has followed certain gastric operations such as gastro-enterostomy and gastric resection has been a source of annoyance to surgeons. Many theories have been advanced to explain this condition. Among the earliest was that the presence in the stomach of bile and the alkaline duodenal juices caused irritation which resulted in the vomiting. Another theory was that a vicious circle was established which lead to persistent vomiting in the gastro-enterostomy cases. Within recent years the hypoproteinemia factor has been proved to play a definite rôle in gastric retention following gastro-enterostomy or gastric resection cases. Ravdin^{22, 24 and 29} and his associates have shown by animal experimentation, roentgenoscopic observations and clinical studies that serum proteins have a marked influence in the motility of the intestines and the gastric emptying time. Many of the gastric cases have had either a prolonged restriction of proteins in their diet, or persistent vomiting which has led to a marked reduction of the plasma proteins. This was found to be true in several of our cases with pyloric obstruction; the plasma protein levels were

TABLE II. PLASMA PROTEIN DATA ON GASTRIC SURGICAL CASES.

Case	Color Sex Age	Diagnosis	Date	Total Protein in Grams		Alb.	Glo.	Fib.	Remarks
				Falling Drop	Colorimetric				
6 F. L.	White Male Age 58	Pyloric obstruction; pep- tic ulcer.....	3- 7-39	5.52	5.02	3.31	1.17	Transfusion, 3-8-39. Subtotal gastrectomy.
			3-10-39	6.53	6.90	3.64	3.26	....
			3-11-39	6.53	6.70	3.64	3.06	Transfusion, 3-13-39.
			3-12-39	.....	7.33	4.12	3.21	....
			3-14-39	7.23	3.83	3.50	Normal recovery.
			3-20-39	.....	6.16	2.61	3.50	....
7 H. R.	White Male Age 47	Pyloric obstruction; duo- denal ulcer.....	11-29-38	5.64	2.70	2.83	.11	Gastro-enterostomy, 11-28-38. Peptonized milk started. Normal recovery.
			12- 1-38	.....	6.60	2.81	3.49	.30
			12- 3-38	.....	8.29	3.26	4.27	.66
8 A. T.	White Male Age 52	Pyloric obstruction; car- cinoma of stomach....	2-16-39	6.25	6.00	Transfusion, 2-18-39. Gastro-enterostomy—1st stage.
			2-17-39	6.22	6.61	4.17	2.44	.....
			2-20-39	5.95	6.24	3.73	2.51	Transfusion—250 c.c. blood.
			2-21-39	5.17	5.56	2.29	3.27	.....
			2-22-39	5.66	5.29	2.92	2.37	Preoperative transfusion. Postoperative transfusion, 500 c.c. blood
			2-23-39	5.62	5.56	2.20	3.36	.....
			2-25-39	5.62	4.38	2.33	2.05	Gastric resection.
			2-25-39	5.62	5.49	3.26	2.23	.....
			3- 2-39	4.28	5.49	2.44	3.05	Transfusion—400 c.c. blood.
			3- 3-39	5.69	6.16	3.04	3.12	.....
			3- 7-39	6.60	6.00	3.22	2.78	Diet postoperative ulcer soft; normal recovery.
			3- 8-39	7.04	6.70	2.85	3.85	.....
			3- 9-39	6.80	6.42	3.09	3.33	Transfusion—400 c.c. blood.
			3-10-39	6.05	6.00	2.39	3.61	.....
			3-11-39	6.53	5.92	2.49	3.43	Diet postoperative ulcer soft; normal recovery.
			3-14-39	5.99	6.61	2.96	3.65	.....
			3-20-39	.....	6.61	2.70	3.91	.....
9 W. S.	White Male Age 61	Gastric ulcer, perforated..	12-26-38	6.80	2.84	3.65	Excision of ulcer and pyloroplasty.
			12-30-38	.....	6.00	2.80	3.20	.....
			1- 9-39	.....	5.56	2.55	3.01	.....
10 A. S.	White Female Age 61	Carcinoma of stomach...	2-13-39	6.90	3.36	3.54	Gastro-enterostomy, 2-13-39. Transfusion followed operation.
			2-14-39	6.25	6.80	3.13	3.77	.....
			2-15-39	5.54	6.80	3.10	3.80	Transfusion, 2-19-39. Entero-enterostomy.
			2-18-39	4.93	5.68	3.96	1.72	.....
			2-20-39	5.95	5.92	2.41	3.51	Transfusion, blood plasma, 2-21-39.
			2-21-39	5.72	5.35	2.21	3.14	.....
			2-22-39	5.59	6.08	2.84	3.16	Transfusion, 2-22-39.
			2-23-39	5.92	6.70	2.96	3.74	.....
			2-25-39	4.85	3.00	1.83	Transfusion—250 c.c. blood. Transfusion—500 c.c. blood.
			2-27-39	5.66	4.47	2.15	2.32	.....
			3- 1-39	4.32	5.07	2.36	2.71	Enterostomy, 3-4-39. Deceased, 3-5-39.
			3- 2-39	4.25	5.07	2.39	2.68	.....
			3- 3-39	5.89	6.00	2.81	3.19	Deceased, 3-5-39.
			3- 4-39	5.37	4.96	2.41	2.55	.....
11 N. P.	White Male Age 52	Duodenal ulcer with py- loric obstruction.....	10-27-38	6.80	3.80	3.00	Partial gastrectomy, 11-15-39. Good recovery.
			10-31-38	.....	6.40	.....	.....	.....
			11- 4-38	.....	6.20	3.60	2.60	.....
			11-16-38	.....	6.42	4.03	2.33	.06
			12-16-38	.....	7.04	3.32	3.72	.....
12 S. F.	White Male Age 63	Pyloric obstruction due to caustic soda.....	10-27-38	7.04	Pyloroplasty and gastro-enterostomy, 11-11-38. Deceased, cardiac failure, 11-15-38.
			10-28-38	.....	5.80	3.09	2.80	.....
			11-14-38	.....	6.79	4.53	2.26	.....
			11-15-38	.....	7.00	4.18	2.73	.09
13 J. M.	White Male Age 51	Gastric ulcer with chronic perforation.....	2- 1-39	7.07	6.60	3.46	3.14	Excision of ulcer and posterior gastro- enterostomy, 1-30-39. Good recovery.
			2- 4-39	6.09	5.84	3.37	2.47	.....
			2- 6-39	6.16	6.51	3.27	3.24	.....
			2- 8-39	7.53	7.60	3.35	4.25	.....
14 J. R.	White Male Age 43	Duodenal ulcer, perfor- ated; partial obstruc- tion.....	2- 4-39	6.09	6.00	3.58	2.42	Posterior gastro-enterostomy, 2-3-39.
			2- 6-39	5.66	6.10	4.04	2.06	.....
			2- 8-39	6.94	6.80	3.47	3.33	.....
			2-15-39	6.19	6.80	3.00	3.00	.....

below the average protein levels. Weech and his co-workers²⁹ have shown that when the plasma proteins are reduced in concentration below a certain level the circulating fluids leave the vessels and edema occurs. The critical level for edema as determined by these workers was found to be 5.2 grams of protein per 100 c. c. of blood. In 1930 Moore and Van Slyke²¹ in observations on 75 patients found that edema was usually present if the total protein content fell below the lower limit of the range 5.5 ± 0.3 per cent, or the albumin below 2.5 ± 0.2 per cent. When the protein contents were above the upper limits of these ranges edema was usually absent. In our cases of gastric surgery only one patient showed clinical edema.

Her protein estimates both for total protein and albumin fell below this level on several occasions. When she was first seen by surgical consultants she had persistent vomiting of all of her food; her blood was undoubtedly concentrated in spite of daily intravenous glucose and saline. Her plasma protein level was practically normal prior to operation and immediately following operation. However, during the course of a week it fell to a lower level in spite of transfusions. At the time of operation an annular constriction at the pylorus was found. The liver was not enlarged and contained no evidence of metastasis; therefore, we concluded that the fall was not due to liver destruction. There was no evidence at the end of the first post-

operative week that the stoma of the gastro-enterostomy was functioning. The patient's general condition was not improving and a second operation, an entero-enterostomy, was decided upon. At the time of the second operation there was no evidence of healing of the first abdominal incision, the tissues were very edematous and separated immediately after the sutures were removed. Our impression was that the hypoproteinemia in this case was one of the influential factors responsible for the non-healing of the wound. Thompson, Ravdin and Frank²⁵ have shown by animal experimentation that there is a marked delay in the repair processes in the hypoproteinemic dogs. Lanman and Ingalls¹⁸ have shown that a Vitamin C deficiency may be another factor influencing repair. On exploration of the gastro-enterostomy marked edematous obstruction of the stoma was found. Part of the edema was due to surgical trauma at the site of operation; however, the majority, we felt, was due to the lowered plasma pro-

tein level and vitamin deficiency. An anastomosis was made between the two loops of jejunum since the proximal part of the stoma seemed to be functioning. The number of transfusions were increased after operation but failed to raise the level of the plasma proteins. The patient continued to show signs of a non-functioning stoma. Later an enterostomy for feeding was made but the patient died the following day. This case serves to bear out the assertion of Ravdin²¹ that the edema of hypoproteinemia may so accentuate and prolong the edema of trauma as to produce a so-called vicious circle. A careful check on plasma proteins by repeated estimates before and after operation will aid both treatment and prognosis.

C. Gallbladder and Liver Cases: Ten cases were studied in this group. Five were operative gallbladder cases in which the condition of the liver at the time of operation was recorded; three patients had drainage of the common duct or the gallbladder. Three cases of carcinoma with extensive liver

TABLE III. PLASMA PROTEIN DATA ON GALLBLADDER AND LIVER CASES.

Case	Color Sex Age	Diagnosis	Date	Total Protein in Grams		Alb.	Glo.	Fib.	Remarks
				Falling Drop	Colorimetric				
15 R. Y.	White Male Age 67	Cholelithiasis, acute cholecystitis with perforation.....	11-12-39	7.20	Operated, 11-11-39. Partial cholecystectomy, liver large and fibrosed. Icterus index 54. Normal recovery.
			11-14-39	.....	8.14	4.82	3.32	.....
			
16 H. B.	White Male Age 67	Cholelithiasis, acute cholecystitis.....	1- 9-39	6.33	3.56	2.77	Operated, 12-30-38. Cholecystectomy, choledochostomy with drainage. Normal recovery.
			2- 1-39	5.81	5.70	3.46	2.36	.....
17 A. O.	White Male Age 39	Cholelithiasis, chronic cholecystitis.....	2- 4-39	6.09	6.00	3.47	2.53	Operated, 2-6-39. cholecystectomy, liver slightly enlarged. Normal recovery.
			2- 7-39	6.50	7.01	3.89	3.12	.....
18 C. P.	White Male Age 38	Cholelithiasis, subacute pancreatitis, acute hepatitis.....	2- 6-39	6.15	6.97	4.53	2.44	Operated, 3-1-39. Cholecystectomy with drainage. Normal recovery.
			2-27-39	7.42	6.70	3.00	3.70	.....
			3- 1-39	6.40	6.70	3.12	3.58	.....
			3- 3-39	6.83	7.33	3.89	3.44	.....
			3- 6-39	6.50	6.80	4.05	2.75	.....
19 J. U.	White Female Age 36	Cholelithiasis, suppurative cholecystitis.....	2-21-39	6.29	7.23	3.17	4.05	Operated, 2-27-39. Cholecystectomy and choledochostomy with drainage, liver showed fibrosis. Recovery prolonged.
			2-22-39	6.43	6.32	3.58	2.74	.....
			2-24-39	5.78	6.24	3.06	3.18	.....
			2-27-39	6.73	6.80	2.96	3.84	.....
			A. M.	.....	.....	.....	.....	.....
			2-28-39	6.86	7.01	2.81	4.20	.....
			P. M.	.....	.....	.....	.....	.....
			2-28-39	6.83	7.01	3.22	3.79	.....
			3- 1-39	6.29	6.42	2.49	3.93	.....
			3- 2-39	.....	6.70	.....	.....	.....
			3- 3-39	6.25	7.01	3.26	3.75	.....
20 A. B.	White Female Age 67	Cancer of gallbladder, metastases in liver....	3- 4-39	5.89	7.12	3.09	4.03	Exploratory operation liver very large some fibrosis and pancreas twice normal size. Very hard and nodular.
			3- 7-39	5.54	5.42	2.87	2.55	.....
			3- 8-39	6.12	6.61	3.16	3.45	.....
			3- 9-39	6.32	6.61	3.16	3.45	.....
			3-13-39	5.81	5.84	2.58	3.26	.....
			3-20-39	.....	5.92	2.88	3.04	.....
21 F. G.	White Male Age 54	Carcinoma of pancreas with extensive liver metastases.	1-20-39	7.40	2.74	4.66	Operation, carcinoma of pancreas with liver metastases found.
			1-25-39	.....	.....	.....	.....	.....
22 F. C.	White Female Age 68	Carcinoma of pancreas and liver.	11- 2-38	5.05	2.07	2.67	.31	Carcinoma very far advanced.
23 F. D.	White Male Age 59	Portal cirrhosis.....	11-25-38	6.51	2.11	4.50	Takata test, weakly positive, autopsy, cirrhosis.
24 P.	White Male Age 53	Hepatic cirrhosis with marked ascites.....	2- 8-39	7.89	Numerous transfusions given, autopsy, cirrhosis.
			2-13-39	.....	6.80	2.00	4.80	.....
			2-15-39	6.19	7.12	2.00	5.12	.....
			2-16-39	6.36	6.70	.....	.....	.....
			2-21-39	6.29	7.12	1.35	5.77	.....
			2-27-39	.....	6.33	1.38	4.95	.....
			2-28-39	.....	6.12	1.38	4.78	.....

metastasis are included in this group. For controls, two medical cases of proved cirrhosis (by autopsy) were selected and the plasma protein estimates recorded with the data of the other cases in Table III.

In the gallbladder and liver series of cases the control cases of proved cirrhosis of the liver had a low value for the plasma albumin with an elevation of the globulin content resulting in a reversal of the albumin-globulin ratio. Tumen and Bockus²⁶ state that hypo-albuminemia is the most constant alteration in chronic hepatic disease. Numerous transfusions of blood and plasma failed to influence the serum albumin levels according to our tests. Foley, Keeton, Kendrick and Darling¹⁰ have shown that the alteration in the protein is not due to a mechanical loss in the ascetic fluid or restriction in the intake of protein. They attribute these changes to hepatic damage and to loss of the liver ability to synthesize serum albumin. There apparently is a definite parallelism between the amount of liver damage and the alterations of the

there was a definite reversal of his albumin-globulin ratio indicating some early liver damage. At operation, the gallbladder was small and atrophic and filled with stones. The liver was very large with definite evidence of hepatitis. The pancreas was hard and nodular and about twice the normal size, suggesting subacute pancreatitis. A cholecystostomy was performed with drainage. The post-operative course was followed by immediate improvement of the patient with a return of the normal albumin-globulin ratio by the sixth postoperative day. Tumen and Bockus²⁶ found that the albumin was low in cases of obstructive jaundice due to carcinoma of the pancreas and moderately reduced in common duct obstruction. Their findings seemed to indicate that the protein changes were more dependent on the completeness of the obstruction than on the duration of the icterus.

D. Ruptured Appendicitis Cases, etc.: This group consisted of the acute inflammatory conditions with abscess formation. Included are three cases of acute appendicitis with abscess formation,

TABLE IV. PLASMA PROTEIN DATA ON APPENDICEAL, ABSCESS AND OTHER SUPPURATIVE CONDITIONS.

Case	Color Sex Age	Diagnosis	Date	Total Protein in Grams		Alb.	Glo.	Fib.	Remarks
				Falling Drop	Colorimetric				
25 W. S.	White Male Age 77	Ruptured appendix with appendiceal abscess ...	12- 2-38	.....	7.53	.....	.....	.....	Operation, 12-1-38; appendectomy and drainage of abscess. Apparently good recovery. Sudden onset of uncon- sciousness, 12-8-38. Deceased, 12-19- 38. Cerebral thrombosis.
			12- 3-38	.....	8.60	3.59	4.27	.74	
			12- 8-38	.....	9.60	3.83	5.53	.34	
26 P. H.	White Female Age 23	Perforated appendix with appendiceal abscess....	12- 8-38	.....	9.50	3.83	5.23	.50	Operation, 12-13-38; abscess drained. Good recovery.
			12-15-38	.....	7.68	3.66	4.02	....
27 A. H.	White Male Age 35	Perforated appendix with localized peritonitis .	3-20-39	.....	7.01	3.32	3.49	....	Operation, 3-14-39; appendectomy. Good recovery.
			3-29-39	.....	6.24	4.04	2.20	....
28 A. S.	White Male Age 23	Ruptured appendix with appendiceal abscess...	2-13-39	.....	6.08	3.47	2.61	....	Abscess, six days old. Operation, 2-13- 39, drainage of localized abscess. Normal recovery.
29 R. L.	White Male Age 28	Osteomyelitis of humerus.	12- 1-39	.....	7.00	3.00	3.66	.34	Operation, 12-24-38; drainage.
30 R. O.	White Female Age 73	Strangulated umbilical hernia; 72 hours old...	11-19-38	.....	7.12	3.00	4.12	....	Operation, 11-19-38; hernia sac filled with gangrenous loops of bowels. De- ceased, 11-21-38.
			11-20-38	.....	6.90	2.92	3.98	....

plasma protein. In the carcinoma cases with liver metastasis the plasma protein changes varied with the amount of liver involvement.

In the operative gallbladder cases of cholecystitis and cholelithiasis, the plasma protein changes that occurred were more likely due to the effects of surgical procedures rather than any marked hepatic damage. There was one exception, Case No. 18. The patient entered the hospital with a history of repeated attacks of jaundice over an eight month period. On his first admission his total proteins and albumin-globulin ratio were normal. Later he developed more jaundice, loss of weight and appetite, and a low grade fever. On this occasion his total proteins were normal, but

one case of appendicitis with localized peritonitis, one osteomyelitis of the humerus, and a strangulated hernia associated with localized peritonitis. These cases were studied because they represented suppurative surgical conditions. The data for these cases are found in Table IV. In the acute surgical conditions associated with abscess formation we found a marked increase in the plasma proteins. This increase occurred chiefly with the globulins and fibrinogen so that a definite reversal of the albumin-globulin ratio occurred which was not indicative of liver damage. Reinmann, quoted by Cuthbertson,⁸ believes that the increase in globulin is due in part to the decomposition of leukocytes. This explanation seems logical in these suppurative

TABLE V. PLASMA PROTEIN DATA ON FRACTURES AND TRAUMAS.

Case	Color Sex Age	Diagnosis	Date	Total Protein in Grams		Alb	Glo.	Fib.	Remarks
				Falling Drop	Colorimetric				
31 F. D.	Colored Male Age 30	Skull fracture	11-16-38	8.44	4.82	5.57	.05	Accident occurred, 11-13-38; 11-16-38 to 11-18-38 given hypertonic glucose for convulsions. Good recovery
			11-18-38	.....	6.70	2.96	3.61	.10
			11-23-38	.....	8.00	3.97	4.03	.....
			11-24-38	.....	8.25	3.20	3.08	.....
32 D. G.	White Male Age 57	Fractures: compound of left tibia and fibula and right humerus.....	11-20-38	6.20	3.26	2.94	Accident, 11-20-38. Open reduction of tibia.
			11-23-38	.....	6.51	3.70	2.79	.....
			11-25-38	6.70	2.62	4.12	Open reduction of humerus, 12-8-38.
			12-3-38	.....	8.76	4.53	3.59	64
			12-16-38	.....	7.52	3.00	4.52	.....
			1-16-39	6.97	7.23	3.52	3.71	.....
			2-8-39	6.50	7.01	3.47	3.54	.....
			3-3-39	6.29	6.90	3.13	3.77	.....
33 A. B.	White Female Age 27	Fractures: pelvis, tibia, and fibula, transverse processes of vertebrae	11-20-38	5.70	3.19	2.51	Accident, 11-20-38. Treatment, cast and bed rest.
			1-24-39	.....	7.01	3.84	2.98	19
			2-4-39	6.02	6.24	3.96	2.30	.....
34 D. H.	White Male Age 30	Fracture of tibia and fibula	2-1-39	6.63	6.42	4.11	2.31	Accident, 2-1-39, cast applied, 2-1-39.
			2-6-39	6.82	6.97	4.19	2.68	.....
			2-8-39	6.70	6.60	4.35	2.25	.....
			2-15-39	6.36	6.64	3.40	3.21	.....
35 A. L.	White Male Age 49	Fracture of third dorsal vertebra and laceration of cord, paralysis below dorsal area.....	2-20-39	6.62	6.61	2.39	3.23	Accident, 2-20-39. Serum reading.
			2-21-39	.....	(5.77)	3.04	2.73	.....
			2-22-39	6.25	6.42	3.08	3.34	Intravenous—Blood plasma 300 c. c.
			2-24-39	7.17	5.84	2.64	2.71	.....
			2-24-39	7.17	6.24	3.14	3.60	.....
			2-25-39	7.04	6.70	3.00	3.70	.....
			2-26-39	7.01	6.24	2.92	3.32	.....
			3-3-39	5.69	6.16	3.04	3.12	.....
									Deceased.
36 J. H.	White Male Age 19	Fracture right humerus, right femur, cerebral concussions, hematuria, internal injuries..	12-1-38	6.60	2.67	3.68	25	Accident, 11-29-38.
			12-2-38	.....	6.60	.....	.....	.....
			12-3-38	.....	8.44	3.42	5.43	59
			1-16-39	7.96	7.73	3.25	4.48	.....
37 S. M.	White Male Age 50	Compound depressed skull fracture.....	1-16-39	7.21	7.35	2.50	4.85	Accident, 1-9-39. Operation for removal of depressed bone fragment. Good recovery.
			3-20-39	.....	7.12	3.26	3.86	.....
38 F. L.	White Male Age 57	Fracture of ulna and radius.....	1-9-39	6.33	3.00	3.33	Accident, 1-6-39; open reduction, 1-12-39. Good recovery.
			1-16-39	6.97	6.60	3.28	3.32	.....
			2-4-39	6.09	6.33	3.70	2.63	
39 J. K.	White Male Age 62	Fracture of pelvis with rupture of urethra, hematuria	12-28-38	5.20	2.00	3.20	Accident, 12-27-38. Slow recovery. Liver complication.
			1-20-39	6.05	6.16	1.12	5.04	.....
			2-6-39	6.15	6.53	2.06	4.47	.....
			3-26-39	.....	6.61	2.30	4.31	.....
40 S. W.	White Female Age 46	Laceration of face, accompanied by hemorrhage, fracture of tibia and fibula, ulna and radius.	12-26-38	5.91	2.58	3.25	.18	Accident, 12-24-38.

conditions. According to Webb,²⁷ the usual observations in the acute infectious diseases of childhood are, minimal lowering of total protein, normal or increased globulin, and considerably decreased albumin. This did not hold true for acute appendicitis. The one case of chronic osteomyelitis in our series showed a normal protein with a slightly reversed albumin-globulin ratio and an increase in fibrinogen. Webb's²⁷ series of chronic osteomyelitis cases showed a high globulin content and a low albumin globulin ratio.

TRAUMATIC SURGICAL CASES

Fractures and Lacerations: Ten patients were studied in this group. The cases varied from simple fractures to compound comminuted fractures accompanied by severe lacerations. The data are charted in Table V. In a study of the effects of fractures on plasma protein levels some difficulty was experienced in getting cases of fractures which were not associated with a great deal of injury to soft tissue. Our results seemed to indicate

that simple fractures alone have only a moderate effect on the level of plasma protein and the albumin-globulin ratio. Severe fractures, especially those associated with extensive soft tissue injury, cause an immediate disturbance of the total protein level and relative proportions of the albumin and globulin. Cuthbertson⁸ found a slight fall in the albumin moiety coupled with a marked rise in the globulin fraction. Fibrinogen is often appreciably raised. Our data tend to substantiate these results. The changes in the plasma proteins following severe lacerations were not unlike those occurring in major surgical operations. Plasma proteins in hemorrhage do not show any marked change until dilution takes place. After the blood is diluted the total protein level roughly corresponds to that of the hemoglobin and red cell count. Later restoration of fibrinogen takes place, followed by globulin and finally by albumin. The normal level is slowly regained.

Burns: Four cases of extensive burns of second and third degree were studied. The plasma pro-

TABLE VI. PLASMA PROTEIN DATA ON BURNS.

Case	Color Sex Age	Diagnosis	Date	Total Protein in Grams		Alb.	Glo.	Fib.	Remarks
				Falling Drop	Colorimetric				
41 S. B.	White Male Age 45	Burns, second and third degree of forearm and hands; second degree of face, first degree of back and neck.	8- 3-38	.....	7.30	4.80	2.50	....	Burned, 8-2-38.
			8- 6-38	.....	11.21	7.10	4.10	....	8-3 8-4 8-6 8-8 Sugar..... 102 114 87 84
			8- 8-38	.....	13.60	6.80	6.80	....	Urea..... 18.1 14.1 11.7 15 Cl..... 440 400 420 400
									8-3-38: Hemoglobin, 14 gms. Red blood count, 4,200,000. 8-6-38: Hemoglobin, 14 gms. Red blood count, 4,900,000. Normal recovery.
42 P. K.	White Male Age 39	Burns, second and third degree of back and upper extremity.....	12-23-38	.....	6.00	3.32	2.68	....	Burned, 12-23-38.
			12-26-38	.....	6.92	2.84	3.66	.42	12-23-38: Hemoglobin, 12 gms. Red blood count, 3,800,000.
			12-30-38	.....	6.60	2.64	4.00	....	Normal recovery.
43 J. K.	White Male Age 32	Burns, second and third degree of both lower extremities and hands..	3-23-39	.....	6.20	3.70	2.50	....	Burned, 3-23-39.
			3-26-39	.....	4.96	2.57	2.39	....	3-23-39 Hemoglobin, 19 gms. Red blood count, 6,300,000.
			3-27-39	.....	6.00	2.80	3.20	....	3-26: Some edema.
			3-29-39	.....	6.00	2.36	3.64	....	3-27: Edema less. 3-29: Edema less.
44 S. H.	White Male Age 50	Burns, second and third degree of both hands and wrists.....	3-23-39	.....	6.60	4.10	2.50	....	Burned, 3-23-39.
			3-26-39	.....	6.61	4.26	2.35	....	3-23-39: Hemoglobin, 18 gms.
			3-29-39	.....	7.12	3.64	3.48	....	Red blood count, 5,700,000.

tein data have been charted in Table VI. The usual definition of a burn is a coagulation necrosis of structures involved which gives rise to the same phenomenon of inflammation as that encountered in wounds. There are essential differences between a burn and a wound which might be worthy of note. According to Pusitz,²³ a burn has an entirely different pathologic syndrome. His chronologic order of pathology is as follows:

1. Surgical shock: within the first twelve hours.
2. Primary shock: dehydration, or anhydremia appearing within the first twenty-four to forty-eight hours.
3. Toxemia: generally appearing after this period of shock.
4. Sepsis: appearing about the sixth to eighth day.
5. Repair: granulation of the wound.
6. Cicatrization or scar formation.

A burn can only be compared to a wound with the beginning of repair. During the progress of the patient through the various pathologic stages the plasma proteins play a very important rôle. The surgical shock of burn cases does not differ essentially from the surgical shock due to other traumas. The plasma proteins apparently do not play a part in this phase of the condition. According to Cuthbertson⁸ blood proteins do not rise in surgical shock or allied conditions.

In the primary shock which follows the surgical shock in extensive burns there is first an increased permeability of the capillaries which allows blood plasma to escape from the vessels. Davidson and Mathews⁹ believe that the increased permeability is due to a direct action of histamine on the endothelium of the capillaries. Large amounts of plasma are lost into the burned areas, resulting

in blood concentration of the burned patients. The concentration is shown in the last two burn cases; the plasma protein estimates were normal or slightly below normal, and the red blood cells were elevated to 5,700,000 and 6,300,000, with hemoglobin determinations of eighteen and nineteen grams. After a period of twenty-four to thirty-six hours the capillary openings close and the water balance or equilibrium is re-established providing an abundance of fluids have been given. The total plasma protein drops during the first twenty-four hours, due to dilution. In one of our cases the total protein dropped to 4.96 grams per cent. This was accompanied by some edema of the dependent parts and burned area. The next day the total plasma protein was 6.00 grams per cent, and most of the edema had disappeared. Transfusions of plasma are recommended to elevate the lowered plasma protein level above the critical level for edema.

In the toxemia stage which is characterized by an elevation of temperature, drowsiness, vomiting and muscular twitching in the severe burn cases, the plasma proteins may continue to be lost. Davidson and Mathews⁹ attribute this to the loss of plasma proteins throughout the entire capillary bed of the body through altered permeability produced by the absorbed toxins. This may be associated with a loss of chlorides. In a few cases, the severe vomiting may dehydrate the patient, with a marked elevation of the plasma protein level above 10 grams per cent as occurred in Case No. 41. This stage is possibly the most important in the treatment because the toxins from the burned areas act both on the central nervous system and on the parenchymal organs, especially the adrenal glands. Christopher⁷ stated that death in burns is

due to shock in the first stage, and degeneration of the adrenal glands in the second. He suggested that in the treatment a concentration of the blood demands fluids, especially saline. Adrenalin injections are indicated in the second stage, and transfusions if the plasma protein levels are low. Weiner, et al.,³⁰ emphasize the importance of the injection of blood plasma rather than whole blood in the severe burns. The injection of the blood plasma may also aid the body in its resistance to infection which occurs in the sepsis stage. Weiner³⁰ also suggests the use of a high protein diet, beef proteins and soy bean meal, to build up the plasma protein level.

In severe toxemia, an exsanguination-transfusion method has been developed in Toronto by Dr. Bruce Robertson, according to Pusitz.²³ The principle of this method is a replacement of the toxic blood of the patient with good, healthy blood of donors, since toxins are known to be closely associated with red blood cells. This procedure of washing out the toxins has been given credit for saving many lives. This method will also serve to assure a more normal level of the plasma proteins.

In the stage of repair and scar formation, the plasma protein rôle is the same as in the healing of wounds.

SUMMARY

A brief review of the literature on source, composition, and function of plasma proteins is presented. Methods of total plasma protein determinations, and albumin and globulin estimates are discussed. The plasma protein data of forty-four patients representing aseptic operation cases and traumatic cases have been charted and discussed.

CONCLUSIONS

Plasma proteins play a significant part in the outcome of surgical procedures because they are important in the repair processes and in the maintenance of osmotic pressure of the blood. Following major aseptic operations and accidental injuries, a rise in the fibrinogen content of the plasma and a reversal in the albumin-globulin ratio usually occur. The cases studied are too few in number in their respective groups to draw any definite or dogmatic conclusions; however, a few impressions may be mentioned.

In Aseptic Surgery:

1. A definite relationship appears to exist between the lowered level of the total plasma protein and the severity of hyperthyroidism. Levels below six grams of total protein or three grams or less of plasma albumin are probably indicative of hepatic damage in hyperthyroidism.

2. In many cases the persistent vomiting which

follows certain gastric operations may be due to hypoproteinemia with edema at the operative site.

3. Plasma protein estimates in jaundice due to obstruction offer a definite prognosis if several estimates are made. Extensive liver damage is made evident by marked reversal of the albumin-globulin ratio.

In Traumatic Surgery:

1. Fractures of bones have only a moderate influence on plasma proteins. Alterations of the albumin-globulin ratio in fractures are more dependent upon the amount of soft tissue damage.

2. Plasma proteins play an important rôle in the various stages of extensive burns. In the stage of primary shock, the plasma protein level is at first normal during the stage of concentration of the blood, then lowered as dilution occurs when whole plasma escapes at the burn site due to increased permeability of the capillary endothelium. In the later stages the plasma protein changes are chiefly those concerned with repair, a reversal in the albumin-globulin ratio with an increase in fibrinogen occurring.

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CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

DIAGNOSIS AND MEDICAL TREATMENT OF BRUCELLOSIS

JAMES A. GREENE, M.D., Iowa City
Department of Internal Medicine

State University of Iowa, College of Medicine

Undulant fever is a newly recognized disease in America. It was not known to be endemic until after Keefer's¹ report of a case in 1924. From that time to the present, knowledge of its various manifestations has gradually increased so that now it is known that any organ or tissue of the body may be involved. The manifestations are so varied that it is beyond the scope of this discussion to enumerate them.

The frequency of the disease makes a discussion of the diagnosis and treatment pertinent. The diagnosis of undulant fever is made primarily by thinking of it as a possibility and being alert to the manifestations which suggest it. An analysis of 70 cases of undulant fever observed at the University Hospitals during the past few years may be of aid in making us think of the disease. It may occur at any age and is more likely to develop among people engaged in certain occupations. Of our patients, twenty-eight were farmers, twenty-one were housewives, seven were meat handlers. The remaining fourteen were professors, students, merchants, laborers, etc. Of the entrance complaints, twenty-two were of weak-

ness, fifteen of fever, five of chills and fever, four of headaches, four of nervousness, seven of gastro-enteric symptoms, two of cough, and one each of chills, weight loss, abdominal pain, generalized aching, rheumatism or arthritis, palpitation, dyspnea, edema and sciatica. The frequency of certain subjective manifestations is shown in Table I. A history of fever, chills and sweats suggests the diagnosis of undulant fever, but on the other hand, such a history may often be elicited only after direct questioning when other evidence has established the diagnosis. It is not unusual for

TABLE I. THE FREQUENCY OF CERTAIN SYMPTOMS IN
UNDULANT FEVER

Symptom	Present	Absent	Not Stated
Fever.....	69	2	
Weakness.....	53	8	9
Sweats.....	47	9	14
Weight loss.....	45	8	17
Gastro-enteric symptoms.....	42	21	7
Headache.....	34	11	25
Vague aches.....	32	0	38
Chills.....	27	12	31
Cardiac disorders.....	25	35	10
Cough.....	21	38	11
Insomnia.....	11	9	50
Arthritis.....	7	28	35
Genito-urinary symptoms.....	6	27	37

the patient to present the symptoms of weakness, nervousness, headache and gastro-enteric complaints. On the other hand, manifestations of one or another disease may predominate. For example, hyperthyroidism, peptic ulcer and gallbladder disease are among the various diseases whose manifestations were simulated. A penile discharge, and a swollen painful testis even led to the diagnosis of Neisserian infection in one patient. Such varied subjective manifestations should cause us to suspect the disease in any patient with an atypical syndrome, particularly in farmers, housewives and meat handlers, or if unpasteurized dairy products have been consumed. The disease should also be suspected in individuals who have a history of repeated attacks of "flu," or an acute "flu-like" or atypical episode followed by prolonged convalescence. Likewise it should be suspected in previously healthy persons who develop weakness or neurasthenia, or of attacks of sweating or persistent headache.

The objective manifestations which suggest the disease are fever and a palpable spleen. Fever was present at the time of observation in 45 of our patients and absent in 25; of these, 23 gave a history of fever. The spleen was palpable in 32 patients, but as a rule, objective manifestations are conspicuous by their absence. Undulant fever may be confused with a great many other diseases and several of the patients were even thought to have psychoneurosis or hyperthyroidism.

After suspicion of the disease has been aroused the diagnosis depends upon the blood culture, blood agglutinations, the opsonocytophagic index, and the reaction to intradermal injections of a vaccine or protein derivatives of the organism. The first three of these are laboratory procedures and will not be discussed. The skin test is performed by the intradermal injection of 0.1 cubic centimeter of a killed vaccine, of bacterial free filtrates or of a protein derivative of the organism. The test is positive if, in addition to an area of erythema around the site of injection, there is also an area of edema or induration which measures from 0.5 to 0.75 or more centimeters in diameter. The reaction usually appears within twenty-four hours, but it may be delayed for as long as seven days² and should persist for at least forty-eight hours. It must be remembered, however, that a positive intradermal reaction indicates that the patient has or has had undulant fever. The susceptibility to this reaction apparently persists for years. The intradermal injection resulted in a positive reaction in one of our patients who had typical manifestations of undulant fever fifteen years previously. It is difficult, therefore, to establish the diagnosis of undulant fever with certainty by skin testing, but a positive blood culture definitely establishes the diagnosis. On the other hand, in many instances the disease is not suspected until after the blood stream is free of the organisms. Blood agglutinins are not always demonstrable and there is a great deal of doubt regarding the value of the opsonocytophagic index. In a great many of our cases, therefore, there is no method available by which the diagnosis of undulant fever can be definitely established. We should be extremely careful in making such a diagnosis from the reactions to intradermal injections. Undulant fever was erroneously diagnosed because of this reaction in a patient with staphylococcus septicemia.

The degree of reaction to intradermal injections may be of some value to ascertain the time which has elapsed since the infection. Several of our patients who were afebrile suffered headaches, lassitude, malaise, aggravation of symptoms and a rise in body temperature as high as 104 degrees in response to intradermal injection of brucellergen. Such reactions tend to confirm the suspicion that the patient has the infection or has had it recently.

Treatment of the patient once the diagnosis is definitely established is also difficult and obviously depends upon whether or not the patient has active infection or is in the postinfectious, neurasthenic stage. During the state of active infection numerous methods of therapy have been employed.³

These methods may be divided into; vaccine, bacterial-free filtrates, serums, foreign protein, artificial fever, chemical, and mixed.

A great many types of vaccines have been administered with reports of spectacular improvement. The consensus regarding their efficacy is best summarized by the fact that they have been generally discarded. More recently, bacterial-free filtrates have been received enthusiastically but their use is definitely on the decline. The reports of the use of anti-serum are mostly favorable. Improvement, however, is usually temporary without spectacular cures. There is some encouragement that more effective anti-serum may be of distinct aid. It was thought that the beneficial results obtained with vaccines and bacterial-free filtrates may have been due to the systemic reaction. It was for this reason that foreign protein therapy was tried, and the results have been practically equivalent to those obtained with vaccine and bacterial-free filtrate therapy. The results with foreign protein therapy suggested the use of artificially induced fever and the results of the two methods of treatment have been comparable. Chemical therapy has varied from the use of the various dyes to the arsenical preparations, and more recently sulfanilamide and its derivatives. Methylene blue, mercurochrome, acriflavine, methyl violet, neoarsphenamine, and sulfanilamide have all received favorable reports in the literature. All of them, however, except sulfanilamide, have been discarded and even therapy with this drug seems to be decreasing in favor. The combination of several methods of treatment does not seem to offer advantages over any individual method.

It is difficult to evaluate the results of therapy in undulant fever, since the disease tends to subside spontaneously or undergo remissions. Many of our patients have been treated extensively by the time they are admitted to the hospital. Such cases make us skeptical of the reported results of the different methods of therapy. Several of such patients have responded to bed rest and symptomatic treatment. It may be that the remission in these patients was spontaneous, but the fundamental treatment for undulant fever certainly appears to be symptomatic, with adequate rest, food and liquids.

The treatment of the postinfectious, neurasthenic phase likewise offers many problems. In the first place, there is no reliable method by which we can ascertain whether or not the active infection has subsided. This uncertainty may aggravate the patient's symptoms and in certain cases it is impossible to know whether the persistent symptoms are due to the presence of the infection, to the

postinfectious reaction or to the patient's anxiety. Many of these patients are semi-invalids for years after the infection has apparently subsided. The treatment of these patients is symptomatic. The activity should be curtailed before the appearance of fatigue. Sedation to produce relaxation and adequate rest is frequently necessary. A thorough explanation of the situation and encouragement and reassurance are valuable adjuncts to treatment and should not be forgotten.

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ETIOLOGY AND LABORATORY DIAGNOSIS OF BRUCELLOSIS

I. H. BORTS, M.D., Iowa City

Department of Hygiene and Preventive Medicine
State University of Iowa, College of Medicine,
and State Hygienic Laboratories

The etiologic agent of brucellosis consists of three species of the genus *Brucella*, namely, *Brucella melitensis* (caprine), isolated and described by Bruce in 1887; *Brucella abortus* (bovine), first isolated from an aborted calf fetus and described by Oluf Bang in 1897; and *Brucella suis* (porcine), first isolated from an aborted hog fetus by Traum in 1914. The chief host of the *melitensis* infection is the goat and transmission to man occurs mainly through ingestion of raw milk. Zammit, a member of the Mediterranean Fever Commission discovered this fact in 1905 and showed the relation of goat infection to that of human infection. Evans in 1918 noted the similarity of *Brucella abortus* cultures to those of *Brucella melitensis* and suggested the possibility of the former being pathogenic for man. Soon after this, reports of human infections due to the *abortus* and *suis* species began to appear and by 1931 Hardy and his associates were able to report their investigation of over three hundred cases. Today the literature contains reports of thousands of cases of brucellosis.

In infected animals the micro-organisms are for the most part localized in the udder, spleen, lymph glands and reproductive system although all organs and tissues may be involved. Insofar as we know the hog is naturally infected only by the porcine species of *Brucella*, whereas, many other animals and man are susceptible to infection by all three species. Infections have been noted under natural conditions in goats, hogs, cows, horses, fowls, dogs, sheep, deer and the buffalo.

The three species of the genus *Brucella* are antigenically very closely related, and are differentiated from one another by agglutination, absorption tests, hydrogen sulfide production, atmospheric requirements, chemical reaction and constituents, reaction to suitable aniline dyes and pathogenicity. The most consistent points of differentiation are as follows: The bovine strains on primary isolation usually require an atmosphere of ten per cent carbon dioxide for growth at 37.5 degrees, centigrade, and gradually may be adapted to growth under ordinary atmospheric conditions. The *melitensis* and *suis* species grow readily on appropriate culture medium at ordinary atmospheric conditions. Their ability to grow or be inhibited by dyes in culture media is of great value in differentiating freshly isolated strains of *Brucella*, whereas strains grown on culture media for prolonged periods may be erratic in this respect if they are not in the smooth phase.

Brucella are very small, gram-negative, non-motile bacilli varying in size from 0.4 to 3.0 microns in length and 0.4 to 0.8 micron in width. These micro-organisms are slow growing and the optimum hydrogen ion concentration is 6.6 to 6.8. Liver and tryptose media are choice for isolation and propagation of the species. On these agar media, minute pin point colonies appear after forty-eight hours incubation; at seventy-two hours they are two to seven millimeters in diameter, and present a clear amber tinge by reflected light.

These micro-organisms, in the presence of moisture and enrichment such as vaginal secretion, survive for long periods of time outside the body. They are moderately susceptible to drying and are readily destroyed by a few hours direct exposure to sun rays. Viability is retained for as long as seven months in infected organs stored in the ice-box, four days in ice cream, thirty days in urine, 120 days in feces, 142 days in butter, and for twelve days in naturally infected milk. The *suis* species in general is most resistant but is destroyed by pasteurization at 142 to 145 degrees Fahrenheit, for thirty minutes. The bovine species is apparently the least pathogenic of the three.

In Iowa the majority of cases occur among farmers, veterinarians, butchers, packing house workers, and those having direct contact with infected animals. Hardy and his associates have shown conclusively that the portals of entry are primarily the skin and gastro-intestinal tract and that the former is most common in Iowa. The following data substantiate such a statement. Of twenty-one guinea pigs shaved, skin abraded and organisms applied, all were infected. Of thirty-one guinea pigs shaved, and organisms applied, 90

per cent were infected. Of thirty-two guinea pigs, hair clipped only and organisms applied, 80 per cent were infected. On the other hand, when eighteen guinea pigs were fed the same number of organisms by stomach tube, only 22 per cent became infected. This latter may assist in explaining in part why we have large numbers of infected dairy herds with only a small number of cases actually traced to the use of raw contaminated milk. For example, in one herd it was found that half of the milk cows were reactors. Of this number 23 per cent were excreting enormous numbers of *Brucella* in the milk, yet not a single clinical case was traced to this milk supply over a period of two years.

On prolonged cultivation *Brucella* show mutating phenomena with the conversion of the normal smooth phase to the rough. This phenomenon may not be reversible and is very important from the agglutination standpoint in that only smooth phase suspensions are suitable for testing. Every batch of *Brucella* antigen prepared for this purpose must be prepared from stable smooth strains or erroneous results may be secured. Unstable forms may not agglutinate in the presence of *Brucella* agglutinins, or agglutination may occur in salt solution in the absence of serum agglutinins.

The isolation of the specific micro-organisms from the blood stream or lesion leaves no doubt as to the presence of *Brucella* infection, whereas, all other positive tests, namely, the agglutination test, skin test and opsonocytophagic reaction may be erroneously interpreted. Up to January 1, 1940, 173 human strains of *Brucella* have been isolated in our laboratory, of which 120 were porcine, 52 bovine and one melitensis. In New York state up to 1938, 51 human strains were isolated, of which 38 were bovine, one porcine, two melitensis and ten unclassified. From this information we might conclude that bovine infections predominate in the eastern part of the United States, and porcine in the midwest hog raising states. Information from other states seems to bear out this contention.

Brucella isolation from the blood stream of man is highly successful in melitensis infections but to a lesser degree in the porcine and bovine infections respectively. Specimens should be taken early in the course of the disease and during the pyrexial periods for most satisfactory results. The isolation of the bovine strains for the most part has been rather disappointing to all workers. Failures are in all probability due to taking the specimens too late, lack of proper culture media and incubation facilities. The most common procedure is to inoculate three to five cubic centimeters of freshly

drawn blood into tryptose or beef liver infusion broth, hydrogen ion concentration 6.6 to 6.8, and incubating under ten per cent carbon dioxide for a minimum of thirty days. At bi-weekly intervals subcultures should be made onto tryptose or beef liver infusion agar slants and the presence of growth determined by incubating subcultures for three days under ten per cent carbon dioxide and ordinary atmosphere.

Guinea pigs are especially good animals for the inoculation and isolation of *Brucella* from suspected infected material such as pus, tissue, milk, etc. In infected animals, agglutinins are usually present in the blood in sufficient titer in three to four weeks and lesions are found in the organs and lymph nodes about the sixth week. Porcine infections in these animals very closely simulate tuberculosis but may be differentiated as follows. In porcine *Brucella* infections specific agglutinins are found in the animal's blood; on mashing portions of the lesions between slides no grating is noted and porcine *Brucella* can be isolated from the lesions. In tuberculosis, *Brucella* agglutinins are absent, grating due to calcium deposits is noted on mashing the lesions between slides, and tubercle bacilli can be demonstrated in the smears.

Aside from the blood culture, the positive agglutination reaction is a very valuable adjunct to diagnosis, although it presents some uncertainties. A positive agglutination reaction may result from a present infection or from one many years in the past and activated by some febrile disease such as typhoid (anamnesic reaction). We have noted in our laboratory several instances of repeated negative agglutination reactions in patients from whose blood culture we isolated *Brucella*. This latter feature has been noted by Carpenter and Boak, Huddleson, Taylor et al., and by Gilbert and Dacy. In the average case with insidious onset agglutinins are usually demonstrable in diagnostic titer (1:80 or higher) at the time the physician is first consulted, which is usually three to four weeks after onset. In the case of a sudden, severe onset, agglutinins are usually present during the first week of the disease. In children with brucellosis agglutinins are more often absent than present. In some instances titers of 1:20 and 1:40 may be of as much diagnostic value as a 1:1280 titer. The presence or absence of agglutinins cannot be used as a criterion to recovery, since they may remain in the blood for months after clinical recovery and may be absent in chronic cases of the disease. *Brucella* agglutinins may be encountered in persons having contact with infected animals and infected material. Veterinarians, packing house workers and farmers may have agglutinins in their blood

without clinical manifestations of the disease. Cases are recorded where persons were found to have high agglutination reactions with a positive blood culture and yet no clinical sign or symptom indicating the existence of subclinical infection. Dooley records 41 per cent of 263 boys in a boys' school with agglutinin titers ranging from 1:40 to 1:12,000. Of this number the blood serum of fifteen agglutinated in 1:320 dilution or higher. Only two clinical cases of brucellosis were found in this group although the milk consumed by the boys was heavily infected with *Brucella*. A positive *Brucella* agglutination reaction may be secured in clinical tularemia and is usually associated with a tularense reaction which is higher than normal. In some instances the titers may be of equal value, in which case agglutination absorption tests will indicate the true nature of the illness. Whole blood for the agglutination test should be collected under strict asepsis and placed in chemically clean tubes, because contamination and the presence of chemicals may lead to false reactions. Hemolyzed specimens and chyle in the serum may cause precipitates which cannot be differentiated from true agglutination.

The opsonocytophagic power of the leukocytes has been studied by Huddleson, Evans, Foshay and others with resulting variations in opinion as to the reliability and interpretation of the test. Since the test must be made on citrated blood within six hours, and preferably within one hour after collection, the procedure is available only to those near a large laboratory with facilities and staff having technical experience in performing the test. It appears, however, that a correlation of the phagocytic power of the blood and the other laboratory tests are of value in differential diagnosis.

ORTHOPEDIC COMPLICATIONS OF BRUCELLOSIS

ARTHUR STEINDLER, M.D., Iowa City
Department of Orthopedic Surgery
State University of Iowa, College of Medicine

In general, one may divide the metastatic lesions of the locomotor system due to *Brucella* infections into three groups:

1. Involvement of single joint, of pyogenic character.
2. Polyarthritic dissemination of the serous type.
3. Osteomyelitis.

The lesions are all rather late sequelae of the infection, occurring eight to twelve weeks after the acute onset, and have a definite tendency to self limitation. Suppurations, on the whole, are rare

(only twelve per cent), but there is a strong reactive activity of the periosteum, similar to that of osteomyelitis. By far the most frequent complication is osteomyelitis of the vertebrae, which, in the overwhelming majority of cases, involves the lumbar spine. Up to 1939, fifty-seven cases are reported in the literature. We add four more.

Case 1. D. B., a male, thirty-eight years of age, had chills during November, 1939. A few weeks later he developed sharp stabbing pain in the back, radiating into the groin. The pain abated gradually and four months later the patient began to move about. He had, however, moderate fever and profuse night sweats and complained of loss of weight and extreme weakness. This patient, when seen, had a temperature of 100.6 degrees, and a white blood count of 10,000. Wassermann and tuberculin tests were negative, but an agglutination test for undulant fever was positive in a dilution of 1:160. The x-ray showed a distinctive lesion between the fourth and fifth lumbar vertebrae with destruction of the disc. There was a moderate sclerosis and marginal bone production. He was treated conservatively by bed rest and brace. Fever and chill abated within a month and he was symptom free when seen six months and again a year later.

Case 2. L. K., a male, twenty-two years of age, developed Malta fever with temperature, perspiration and weakness and, shortly after, pain in the region of the eleventh and twelfth dorsal vertebrae six months prior to admission. The tuberculin test was negative, and agglutination for undulant fever was positive. The temperature rose daily to 100 degrees, and the white blood count was 6,000. The x-ray showed a destructive lesion of the eleventh and twelfth dorsal vertebrae without abscess formation. Treatment was entirely conservative, by cast and rest. Spontaneous fusion of the diseased area occurred, and he was symptom free when seen eighteen months later.

Case 3. W. I., a male, fifty-six years of age, had profuse sweating, chills and fever immediately preceding his complaint of low back pain, involving the lumbar spine, three weeks prior to admission. When seen, the patient was acutely ill, with a temperature of 101 degrees. The tuberculin test was negative; agglutination for undulant fever was positive in a dilution of 1:1200; and the white blood count was 5,950. The patient was treated conservatively with a brace, with relief after four months. He was symptom free when seen eighteen months later.

Case 4. R. D., a male, thirty-three years of age, complained of fever and pain in the lower abdomen, hip and low back for one month. The tem-

perature was 103 degrees. The agglutination test for Malta fever was positive on admission; the white blood count was 11,300. The x-ray showed a destructive lesion of the third, fourth and fifth lumbar vertebrae with abscess formation anterior to the transverse processes. This abscess was drained, with recovery after four months. The osteomyelitis was healed when this patient was seen two years later. This is the only case in the series with abscess formation.

Case 5. Another case involving the hip joint is added. The patient, P. S., a female, six years of age, developed sore throat three weeks prior to admission and, one week later, pain in the left thigh. At the same time she carried an intermittent temperature, but no chills. The temperature on admission was 103.5 degrees, and the white blood count was 4,100. The hip was contracted and tender, but there was no abscess formation. The x-ray was negative. The agglutination for Malta fever was positive in a solution of 1:2560; the spleen was enlarged. This case was likewise treated conservatively by traction and immobilization. The temperature subsided within ten days and local symptoms disappeared.

Characteristic features of skeletal involvement in brucellosis are: preference of lumbar spine, with narrowing of disc and reactive bone production, rarity of abscess formation, benign course, tendency to self limitation, and response to conservative treatment.

Of differential diagnostic importance are the history of remittent fever, chills and sweating; enlarged spleen; low white count; negative tuberculin and Wassermann tests; and positive agglutination for *Brucella* in higher dilutions.

Discussion

Dr. Nomland: I have seen two dermatologic manifestations with *Brucella* infections. The first was a generalized toxic erythema which may be seen with any infection and is of no particular significance. The second is a specific dermatitis of an arm and, so far as I know, occurs only with *Brucella* infections and might be considered to be an occupational disease with veterinarians. A few veterinarians develop a dermatitis of the arm when they take care of an infected animal, particularly when they insert their arm into the vagina to remove a placenta. The reaction is delayed, coming on usually within twenty-four hours and is characterized by marked redness and edema limited to the area of the arm exposed to infectious material. The reaction lasts a few days and disappears and is a great deal like a contact dermatitis. I have seen one veterinary with this disorder. He developed a fever of 103 degrees and a palm-sized patch of intense redness to an intradermal test with brucellergen.

Dr. Borts: In answer to questions regarding the relation of brucellosis and Hodgkin's disease may I say that many different types of micro-organisms have been isolated from Hodgkin's lesions, none of which has positively been proved to be the etiologic agent. Research workers at Duke University have isolated *Brucella* from Hodgkin's cases in a rather unusual number of cases. It is peculiar that in these cases the other laboratory tests for brucellosis have been negative for the most part. We, therefore, must mark time until more work has been done in this respect before coming to any conclusions.

THE FINLEY HOSPITAL CLINICOPATHOLOGIC CONFERENCES

SPONTANEOUS PNEUMOTHORAX

H. M. PAHLAS, M.D., and J. C. PAINTER, M.D.
Dubuque

By means of modern diagnostic methods spontaneous pneumothorax has been removed from the list of rare conditions. While usually secondary to tuberculosis, malignant growths, infarcts, abscesses and pneumonia, it is also true that pneumothorax may occur in individuals in which complete examination fails to reveal any evidence of disease in the lung. The case to be described seems to belong in the latter group.

CASE REPORT

The patient, a white man thirty-four years of age, a school teacher, was admitted to the Finley Hospital on November 5, 1939, with complaints of shortness of breath and pain in the right chest.

Family History: Irrelevant.

Past History: The patient had had no illness except the diseases of childhood. He coughed slightly in the mornings but he attributed this to cigarette smoking.

Present Illness: Six days before admission he fell downstairs and received minor bruises about the hands and elbows, but he did not remember any pain in the chest. Two days later, while planning a board, he began to have pain in the right side of his chest and later he also noticed it on the left side. The chest was strapped by the director of physical culture at his school and the pain was thought to be due to pleurisy. He was at work until the day he was admitted when the pain and shortness of breath became more pronounced.

Physical Examination: The patient was a well developed and well nourished white man. His pulse and temperature were normal. The eyes reacted to light and accommodation. The teeth

and throat were not remarkable. The thyroid gland and the cervical lymph nodes were not enlarged. On inspection of the chest the right side was almost motionless. On percussion this side was tympanitic throughout. On auscultation breath sounds were absent throughout the right lung. On the left, the lung was hyperresonant and a few bronchial râles were heard anteriorly. On percussion the heart was not enlarged but the apex beat was displaced slightly to the left. On auscultation no adventitious sounds were heard. Examination of the abdomen was negative except that the edge of the liver was two centimeters below the right costal border. The extremities and nervous system were negative.

X-ray Examination: There was extensive pneumothorax on the right side with almost complete

are shown in a film taken three weeks after admission. (Fig. 2.) A film taken five weeks later showed the complete expansion of the lung. At the present time (five months after the onset) the patient is well.



Fig. 1. X-ray taken four days after the onset, showing almost complete collapse of the right lung.

collapse of the right lung. (Fig. 1.) The left lung was negative. The heart was displaced slightly to the left.

Subsequent Course: The patient remained in the hospital for five days. The temperature was usually below normal but rose to 99.4 degrees on one occasion. The pain was quickly relieved, but the cough and dyspnea persisted especially when he turned on the left side. A Mantoux test was positive but there was no evidence of tuberculosis in the lungs. However, in view of the negative history and the positive Mantoux test it was thought advisable to treat the patient as though he did have tuberculosis. He was sent home and after a period of rest was given mild exercises in order to aid expansion of the lung. The results



Fig. 2. X-ray taken twenty-five days after the onset, showing expansion of the lung.

Comment: Apparently this was a case of spontaneous pneumothorax. It is possible, however, that it might be due to tuberculosis since the Mantoux test was positive. However, repeated x-ray examinations failed to show any evidence of lung pathology, suggestive of active tuberculosis. Another possibility is that the fall received two days before the onset of symptoms may have been a factor in producing the pneumothorax. It is difficult to believe that such was the case in view of the absence of recognized injury to the chest and the period between the injury and the onset of symptoms. With these qualifications in mind the case is characteristic of idiopathic spontaneous pneumothorax.

GENERAL DISCUSSION

Kjaergaard¹ first recognized that this condition frequently had nothing to do with tuberculosis, that it occurred in healthy persons, and he therefore designated it as "pneumothorax simplex." Prior to his work spontaneous pneumothorax was considered *prima facie* evidence of tuberculosis and a year's treatment by strict bed rest, preferably in a sanatorium, was recommended. With a better understanding of the significance of the Mantoux test and its more widespread use it was found that many cases were negative for tuberculosis. Thus Leggett, Myers and Levine² found

that more than 50 per cent of their series had negative Mantoux tests. Biach³ analyzed a series of 914 cases of pneumothorax and lists the causes and incidences of all forms as follows:

Pulmonary tuberculosis	715 cases
Pulmonary gangrene or abscess.....	75 cases
Empyema	45 cases
Bronchiectasis	10 cases
Pulmonary infarct	4 cases
Trauma	35 cases
Other known causes	15 cases
Unknown causes	14 cases

Kjaergaard made special studies in order to determine the etiology of the perforation in spontaneous pneumothorax. In six cases which he followed to autopsy he found rupture of superficial air vesicles at the apex of otherwise normal lungs. These were either congenital or had resulted from scars which produced valve-like strictures at the base of the vesicles permitting the ingress of air but partly preventing its egress. Kjaergaard also described these superficial vesicles in patients without pneumothorax. In this connection it is interesting to note that in four of our series of 680 autopsies, clusters of thin-walled vesicles were found at the apices of the lungs.

In recent years a few reports of spontaneous pneumothorax in apparently healthy individuals, especially college students, have appeared.^{4, 5 and 6} Today it is generally believed that the condition is not nearly as infrequent as it was formerly thought to be. The onset of symptoms of pneumothorax is usually abrupt. Pain is almost always present and may be so severe as to require morphine, or it may be mild and described more as a feeling of pressure or weight on the affected side. The pain often increases in severity for a few hours and then gradually subsides. Dyspnea usually accompanies the pain and may be mild or severe depending on the degree of pulmonary collapse. A dry reflex cough is often complained of and rarely, cyanosis is a feature of the clinical picture.

The diagnosis is made by physical examination and by making chest films. The essential findings on physical examination are as indicated in our case. Usually the diaphragm is lowered more than it was in our case and often the shift of the mediastinum away from the affected side is more pronounced. Fluoroscopy is not considered as reliable as the x-ray films which determine the degree of collapse and also permit one to follow the re-expansion of the lung. Routine laboratory examinations are negative. Examination of the sputum for tubercle bacilli should be conducted but in the spontaneous type of pneumothorax bacilli are usually absent, as in our case. The Mantoux test should also be made. A positive reaction does not

mean the presence of clinical tuberculosis, but a negative test excludes this etiology. As in our case the chief problem in apparently healthy individuals with pneumothorax is to rule out tuberculosis. Films taken of the collapsed lung are not always dependable. After re-expansion the roentgenograms are reliable. In this case they were negative and while the patient is still under observation we do not believe tuberculosis is an etiologic factor. Rest in bed is the only treatment required in most cases of spontaneous pneumothorax. Kjaergaard recommended a minimum of two weeks, but Perry believes that one week is long enough to allow the perforation to heal and that after healing the condition is unaffected by exertion. The prognosis is good but patients should be warned that there may be recurrence of the condition.

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DEDICATION OF OSLER MEMORIAL

The old autopsy house where Osler worked at Blockley has been restored as the Osler Memorial Building, and will be dedicated on the grounds of the Philadelphia General Hospital, at Curie Avenue, near 34th and Pine Streets, at 2:00 p. m., Saturday, June 8, 1940. Original furnishings, including the necropsy table, have been collected. A cordial invitation is extended to those who are interested, and especially to those who are planning to attend the American Medical Association Annual Session in New York, June 10 to 14, 1940.

POSTGRADUATE COURSES IN OBSTETRICS

The Department of Obstetrics and Gynecology of the University of Chicago and the Chicago Lying-in Hospital are offering five to six weeks postgraduate courses in obstetrics for practitioners during the next several months. The University is receiving the cooperation of the Illinois State Department of Public Health, the Division of Child Hygiene, and the Children's Bureau of the United States Department of Labor, in the venture. A nominal fee of fifteen dollars is being set for the course, and the number accepted for each session will be limited. The first period ran from April 29 to June 8; the second period will be from June 17 to July 20; and the third course will be from July 22 to August 24. Applications and inquiries should be addressed to Postgraduate Course, Department of Obstetrics and Gynecology, 5848 Drexel Avenue, Chicago, Illinois.

STATE DEPARTMENT OF HEALTH

Walter Diering

Rocky Mountain Spotted Fever In Iowa 1933-1939

Reporting of First and Subsequent Cases

C. N. Freligh, M.D., of Waucoma, Fayette County, Iowa, was the first physician to make official report to the Iowa State Department of Health of a case of Rocky Mountain spotted fever. This occurred in June, 1933. During the seven years which have since intervened, 65 cases of spotted fever have been reported in Iowa.

Case Reports in 1939

Twenty-seven cases of spotted fever were reported to the Department by Iowa physicians in 1939; six deaths occurred, a fatality rate of 22 per cent.

Month of Onset of Illness

In 1939, illness in the earliest case developed on April 29. One patient had onset of symptoms in April, eleven in May, six in June, eight in July and one in August.

Age and Sex Distribution

Among the 27 cases reported in 1939, male patients numbered fifteen, females twelve. The youngest patient was five, the oldest sixty years of age. The age and sex of the patients are indicated in Table I as follows:

TABLE I

Age Group	Male	Female	Totals
1-9	1	2	3
10-19	1	4	5
20-29	4	2	6
30-39	2	2	4
40-49	4	2	6
50-59	1	0	1
60 and over.....	1	0	1
Age not stated.....	1	0	1
Totals	15	12	27

Exposure to Tick

Twenty of the patients lived in or frequented rural areas, and twenty-one gave a history of direct exposure through tick bite.

Symptoms and Signs

Typical among the cases reported a year ago was that of a Jackson County farm worker, forty years of age. This patient became ill on June 3, complaining of severe headache, fever and generalized aching, especially in the calves of the legs. Reddish macules, from two to five millimeters in diameter, were observed on June 9 on the abdomen and chest. A purplish, macular rash was clearly visible on June 14 over the body and extremities. The knee reflexes were hyperactive and ankle clonus was present. The patient gave definite history of exposure to the common dog tick, *Dermacentor variabilis*. The attending physician forwarded two blood specimens to the Department's State Hygienic Laboratory. The Weil-Felix agglutination test on the first specimen, taken June 10, was positive in a dilution of 1:40. A second serum specimen, examined four days later (June 14), was positive in dilution as high as 1:320.

Case Reports for Period 1933-1939

During the seven-year period from 1933 to 1939, cases were reported from 33 of the counties in Iowa. The accompanying table (Table II) indicates the counties from which one or more cases have been reported and the year(s) of report. The accompanying map shows the distribution by counties of total cases thus far reported in Iowa and the number of cases notified from the counties concerned during the seven-year period.

TABLE II
ROCKY MOUNTAIN SPOTTED FEVER IN IOWA
County Distribution of Cases Reported During the
Seven-Year Period 1933-1939

County	The Year of Report							Totals
	1933	1934	1935	1936	1937	1938	1939	
Adams		1			1		1	3
Allamakee	1							1
Appanoose							1	1
Benton							1	1
Boone		1				2	1	4
Buchanan						1		1
Cedar		2						2
Clarke	3				4		1	8
Clinton							1	1
Dallas							1	1
Davis							1	1
Fayette	1							1
Hamilton							1	1
Jackson					1	1	1	3
Jefferson					1			1
Keokuk							1	1
Lee		1	2					3
Linn			2					2
Louisiana	1							1
Lucas				1			1	2
Marion							1	1
Monroe							1	1
Muscatine							1	1
Polk						3	3	6
Poweshiek			1				1	2
Tama					6		2	8
Union		1						1
Wapello					1	1	2	4
Washington					1			1
Wayne							1	1
Webster							1	1
Woodbury							1	1
Wright							1	1
Totals	6	6	5	1	15	5	27	65

Complete Reporting Desired

Request is made of attending physicians for all cases and suspected cases of Rocky Mountain spotted fever to be reported promptly to the State Department of Health. A limited amount of convalescent spotted fever serum is available, particularly for patients who may come under observation early in the course of illness.

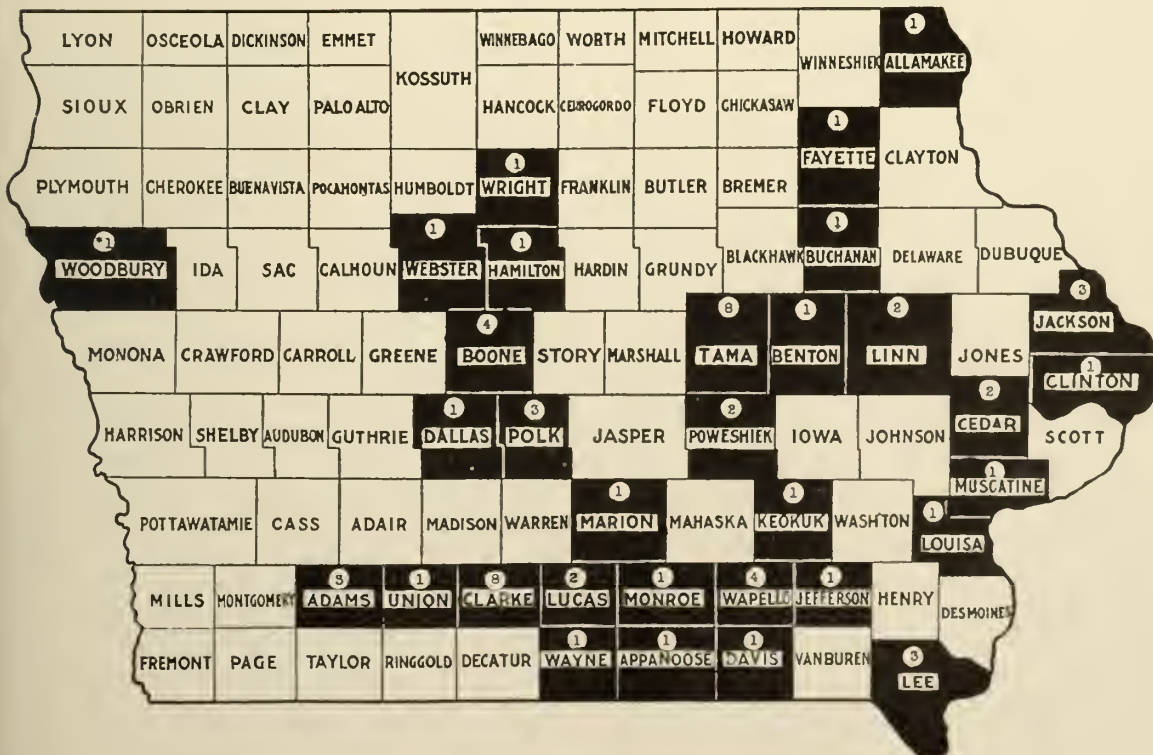
PREVALENCE OF DISEASE

	Apr. '40	Mar. '40	Apr. '39	Most Cases Reported From
Diphtheria	19	13	37	For the State
Scarlet Fever	260	271	545	Polk, Dubuque, Scott, Bremer
Typhoid Fever	4	5	2	For the State
Smallpox	103	44	200	Muscatine, Polk
Measles	1140	1074	900	Poweshiek, Linn, Decatur, Lee, Polk
Whooping Cough	100	37	52	Keokuk, Dubuque, Muscatine
Chickenpox	189	190	242	Woodbury, Black Hawk, Marshall, Des Moines
Influenza	23	74	262	For the State
Mumps	562	470	182	Des Moines, Montgomery, Woodbury, Linn, Muscatine
Pneumonia	195	305	159	Black Hawk, Clinton, Lee, Polk, Dubuque
Poliomyelitis	1	1	1	Buchanan
Tuberculosis (Pulmonary)	54	27	84	For the State
Tularemia	1	4	0	Mahaska
Undulant Fever	14	21	2	For the State
Gonorrhea	131	99	92	For the State
Syphilis	256	267	233	For the State

ROCKY MOUNTAIN SPOTTED FEVER—1933-1939

Showing number of cases in counties where the disease has been reported.

*—Probable exposure in Colorado.



The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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RESUME OF THE 1940 SESSION

New records in all phases of constructive endeavor are worthy of comment. The 1940 session of the Iowa State Medical Society established a new all-time attendance record! Present were 826 society members, 70 guest physicians, 27 other guests, 88 exhibitors and 225 members of the Woman's Auxiliary, making a grand total of 1,236. This represents an increase of nearly 200 registrations over 1939, certainly a clear-cut demonstration of sustained interest and healthy growth.

Not only did the 1940 session set a record in attendance, but in all-round excellence it was well up to the top in all departments. The weatherman might have been a bit more considerate of the comfort of the golfers who held their sixth annual competition on the day preceding the opening of the formal session, but according to reports even the chill and the wind failed to shake the enthusiasm. More details of the golf tournament are to be found elsewhere in this section.

Little need be said here about the general program, except to congratulate the section chairmen, Drs. Jeans, Bellinger and Cobb, on a difficult task well done. Altogether, forty-three addresses were presented on a variety of subjects arranged especially to meet the needs of the general practitioner of medicine. Often times we hear it said that it is unnecessary to attend a meeting, that one can obtain just as much value from reading the published articles. With this point of view we disagree. When one hears the address delivered, and has an opportunity to observe the personality of the speaker, he is supplied with a mental approach to the written article which is otherwise lacking. However, while we may feel that those who were fortunate enough to have heard the papers as they

were given will benefit most from reading the published articles, there is much to be gained by those who faithfully read their JOURNALS, and the program of 1940 has provided the JOURNAL with a group of manuscripts of exceptional merit.

The guest speakers this year were a particularly fortunate selection. We feel sure the society wishes us to express publicly in these columns the thanks and appreciation of the entire membership to these nationally known physicians, some of whom traveled long distances at considerable sacrifice to themselves, in order to bring us first hand information on some of the latest accomplishments in modern medicine.

Something too should be said about the addresses of the President and President Elect, Dr. Hennessy and Dr. McNamara, respectively. To our mind both speakers sounded a note which typifies the attitude of the medical profession as it stands today and as it looks to the future. We agree heartily with Dr. Hennessy that it is time medicine took its light from under the bushel and let it shine clearly before the public eye. We know the people of America have the best medical service in the world. We know lives could be saved and untold unnecessary illness avoided if people would only seek the advice of their doctor instead of listening to their lay friends gathered around the parlor table. Many states are already engaged in a systematic program of informing the public on facts in medicine and in health. Is it not time for Iowa to do likewise?

Dr. McNamara reviewed the efforts which modern medicine, as exemplified by our state medical society, is and should be making to maintain itself on the high level of a free and independent enterprise. He recognizes frankly that there are problems which still await solution in connection with the supplying of medical service to those of our citizens in the indigent and low income groups. The important point is that the problems are recognized and are being vigorously attacked, and if medicine can only be left free of political interference it is certain that the answers will be found.

Increased interest in the Hobby Show and the Scientific Exhibits proved once again that these are valuable adjuncts to any state meeting. More doctors participated in the Hobby Show than in any previous year, and the standards for the scientific exhibits are becoming higher with each annual session. Mention should also be made of the scientific motion pictures. The two-day showing included not only the conventional black and white films, but also some in color and some with sound. About thirty films were shown covering medicine, surgery, obstetrics and many of the specialties, in

an attempt to diversify the program so that it might be of interest to all. Through the kindness of Dr. Bierring and the State Department of Health and the Mead Johnson Company, two projectors and operators were available, which permitted continuous showing without interruption. This phase of the annual session was a popular innovation, if one can judge interest from the standpoint of attendance, and we are of the opinion that if the movie showing becomes a permanent part of the state meeting it will be a valuable source of education in future years.

FETAL RISK IN BREECH PRESENTATION

It has been generally conceded that breech presentation, while leading to no marked adverse maternal results, does produce a definitely higher infant mortality rate than is the case with vertex positions. In an endeavor to understand more thoroughly the factors which result in this increased risk, Seely and Siddall* of Detroit, conducted a study of breech presentations at Harper Hospital and Herman Kiefer Hospital over a five year period. The series from Harper Hospital was composed of private patients who were delivered by obstetricians. Herman Kiefer Hospital accepts only indigent and emergency patients who are delivered by resident physicians.

The incidence of breech presentation at Harper Hospital was 283 in 5,885 total deliveries, or 4.8 per cent; that at Herman Kiefer was 490 in 7,800 deliveries, or 6.3 per cent. This included fetuses of all sizes from the seventh calendar month to full term. Among the 773 breech deliveries there were seven maternal deaths (0.9 per cent mortality) but all of these deaths were attributed to serious maternal complications rather than to breech delivery itself. The gross fetal mortality was 244 stillbirths and neonatal deaths (31.6 per cent). However, when this mortality rate was corrected by the deduction of babies weighing less than 1,500 grams (three pounds, four ounces) and by those cases of fetal death on admission, the result was a total of 53 deaths in 538 cases (9.9 per cent) which may be attributed to breech delivery. There were 89 premature infants (weight between 1,500 and 2,500 grams) with 24 deaths, a mortality rate of 27 per cent. The stillbirth and neonatal mortality of breech babies weighing 2,500 grams (five pounds, eight ounces) or over was 29 in 499 or 6.5 per cent. Intracranial hemorrhage was the cause of death in seven, asphyxia in ten and pneumonia in two. In contrast to a general cut-rate mortality of 1.85 per cent, the rate of 6.5

per cent in breech presentations indicates a definite increased risk to the child by breech delivery.

The factors which contribute to the increased mortality rate in breech deliveries are prolapsed cord, contracted pelvis, breech position in elderly primiparas, small premature infants and large infants (eight pounds and more). The authors recommend in treatment, external version without anesthesia. Cesarean section should be considered in breech cases with contracted pelvis, in elderly primiparas, and in primiparas with excessively large babies.

It may be concluded from this study that breech presentation definitely increases the hazard for the infant but in general does not jeopardize the mother more than cephalic presentations. Certainly there is no field of medicine that requires more judgment or skill than the management of a complicated or difficult delivery.

PRIMARY INFECTION OF TUBERCULOSIS

Three years ago the National Tuberculosis Association abandoned the term "childhood type of tuberculosis" for a more concise entity "first infection type of tuberculosis." The former implied that primary infection was confined to childhood, whereas repeated studies indicated that a primary or first infection type may occur at any age. Actually, as a result of the decline of tuberculous disease, the occurrence of first infection type of tuberculosis among children has been greatly reduced and the incidence of primary infection in adults has become much more common.

The first infection or primary type of tuberculosis is usually a benign infection, except in infancy. The lesion becomes walled off by monocytes and epithelioid cells and a proliferation of connective-tissue cells, and ultimately is surrounded by a zone of calcification. The involved regional lymph glands likewise undergo resolution and calcification, although caseous areas may persist for many years.

The behavior of a first infection in the adult resembles the primary infection in childhood in the majority of cases. Henry C. Sweany,* however, points out that in a considerable number of cases, the adult reacts in a different manner. From a study of 800 autopsies, Sweany concludes that there is a tendency for first infections in adults to become more confined to the parenchyma of the lung with a diminishing size of the lymph node component. In the adult the lesion tends to localize more in the upper parts of the lung, simulating

*Seeley, Ward F., and Siddall, Roger S.: The fetal risk in breech delivery. *New Internat. Clin.*, Volume I, New Series 3:28 (March) 1940.

*Sweany, Henry C.: The pathology of primary tuberculosis infection in the adult. *Am. Rev. Tuberc.*, xxxix:236 (February) 1940.

the usual reinfection type of tuberculosis. The lesions are much more prone to soften and ulcerate, and there is less tendency for calcification to occur. The overwhelming primary infection in adults occurs in the parenchyma as a pneumonic or ulcerative process and bears almost no resemblance to the typical primary complex.

Sweany ascribes the difference between the childhood and adult response to the primary infection to several causes. First, the rich lymphatic supply in the adult tends to localize the infection rather than permit it to generalize throughout the body. Second, there is a difference in the speed of growth of body cells. In the adult the fibrous tissue grows so slowly that tubercle bacilli are permitted to overflow into surrounding alveoli, thence into bronchioles and by bronchogenic spread involve more distant regions. Third, calcification is less because density of the calcification depends on the age of the lesion, and the density and thickness of the capsule. Fourth, it is possible that the localization of the adult primary lesion may be due to "a nonspecific effect," a cellular defense mechanism resulting from repeated experience with nonspecific infections. The great importance of the primary lesion is that it is for the most part asymptomatic and may not be related to any apparent disease. Although it is a latent period clinically it is an insidious progression pathologically.

As a result of the rapidly decreasing infection rate of tuberculosis, the time seems not far distant when the majority of primary infections will occur in adults. The fact that the adult response to the initial infection frequently fails to conform to the usual benign primary complex, but may simulate the reinfection type of tuberculosis, should be thoroughly understood.

NEW YORK CITY NEXT

The Ninety-first Annual Session of the American Medical Association will be held in New York City, June 10 to 14, 1940. Unquestionably the location of this year's meeting place will attract many hundreds of additional members and their families who will take advantage of the occasion to attend not only the world's largest medical convention, but also to visit one of the greatest cities in the world and its current gigantic exhibition, the New York World's Fair. The JOURNAL surmises that this combination of features will make it rather easy for Dr. and Mrs. American Physician to decide that this is the year of all years when they can get away.

For those who are in the habit of attending the national convention, no description of this greatest of all medical meetings is necessary. For those

who have never attended an annual session, no mere word picture is adequately descriptive. It is necessary to go, to see and to hear, if one is to grasp its full significance. However, it must never be forgotten that the success and greatness of any medical gathering is proportional to the faithfulness of the membership to attend. The program, the scientific exhibits, the technical exhibits and the numerous associated features have all been arranged with but one objective in view, that of increasing the knowledge of the physicians of America. We hope Iowa will be well represented at the New York Session.

SIXTH ANNUAL GOLF TOURNAMENT

The Sixth Annual Tournament of the Iowa State Medical Golf Association was held Tuesday, April 30, 1940, at the Des Moines Golf and Country Club in Des Moines. Thirty-six men from all parts of the state participated.

Despite the cold windy day everyone seemed to have a good time. Following the game a jolly social hour preceded a steak dinner which put everyone in the proper mood for the awarding of the prizes. The committee made good its promise that everyone would receive a prize if it was no more than a golf ball or a tube of tooth paste. Dr. E. L. Emerson of Muscatine had the low medal score of 87, thereby winning the Iowa State Medical Society cup. The prizes this year were exceptionally attractive, and the officers of the organization wish to express their appreciation to the following firms who helped to make the tournament successful by their generous donations: Armour and Company, Pharmaceutical Division; Carroll, Dunham and Smith; Cerophyl Laboratories; The Colgate Company; Corn Products Refining Company; General Mills, Inc.; Hynson, Westcott and Dunning; Johnson and Johnson; Kolynos Company; Lederle Laboratories; Mead Johnson and Company; Merck and Company; William S. Merrill Company; Parke, Davis and Company; Petrolagar Laboratories; Philip Morris and Company; Physicians Casualty Association; Sharpe and Dohme; S. M. A. Corporation; Smith-Dorsey Company; E. R. Squibb and Sons; Upjohn Company; Winthrop Chemical Company; John Wyeth and Brother; The Zemmer Company; and the following Des Moines firms: Coca-Cola Bottling Company, Davidson Furniture Store, Frankel Clothing Company, Koch Brothers, The Retreat, Utica Clothing Company, and Wallace-Homestead Company.

Newly elected officers of the association are Dr. John S. Deering of Onawa, president, and Dr. Charles A. Nicoll of Panora, secretary.

WOMAN'S AUXILIARY NEWS

MRS. H. I. McPHERRIN, *Chairman of Press and Publicity Committee*

5822 North Waterbury Road, Des Moines

President—MRS. ELBERT T. WARREN, Stuart

President Elect—MRS. W. R. HORNADAY, Des Moines

Secretary—MRS. FRED MOORE, Des Moines

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

REPORT OF ANNUAL MEETING

The Woman's Auxiliary to the Iowa State Medical Society held its Eleventh Annual Meeting on Wednesday and Thursday, May 1 and 2, 1940, at the Hotel Savery in Des Moines. We believe the attendance at this year's session was the largest ever experienced by the Auxiliary. Visiting women were registered from forty-seven counties, in twenty-two of which there are organized county auxiliary units. Members of the Polk County Auxiliary, with Mrs. Russell C. Doolittle and Mrs. A. E. Merkel, chairmen, served as hostesses, and much of the success of the occasion is due to their helpfulness and generous hospitality.

The opening luncheon on Wednesday for board members and county auxiliary presidents was followed by a preconvention board meeting, with Mrs. E. A. Hanske, president, presiding. The afternoon tea and evening bridge party offered informal fellowship to the entire group. The home of Dr. and Mrs. Howard D. Gray was opened for the lovely tea honoring Mrs. Hanske, president, and Mrs. E. T. Warren, president elect, and the other visitors. The bridge party was held on the mezzanine floor of the Savery Hotel.

The Auxiliary was honored on Thursday by the presence of Mrs. Rollo Packard of Chicago, president of the Woman's Auxiliary to the American Medical Association. Mrs. Packard was present at the morning business session, where she very helpfully participated in the discussion. She was guest of honor and speaker at the luncheon. Highlights of her remarks will be found elsewhere in this section. Other guests at the luncheon, which was the concluding social event of the meeting, were Dr. Felix A. Hennessey, president of the Iowa State Medical Society, and Dr. Frank P. McNamara, president elect of the Iowa State Medical Society. Both brought greetings and expressed their support of and interest in the work of the Auxiliary. The address of Dr. John I. Marker of Davenport on "Character and Personality Development" was another feature of the day's program. He stressed the importance of a happy atmosphere about the home and proper guidance during the years of infancy, in order to ensure the child's development of a wholesome personality. Mrs. John Connell of Des Moines presented a delightful review of "Burma Road" by Nicol Smith, which added greatly to the general enjoyment of the program.

The Gertrude Downing Membership Cup was awarded to the Calhoun County Auxiliary for the greatest increase in membership during the year.

Officers elected at the business session for 1940 and 1941 are as follows:

President—

Mrs. E. T. Warren, Stuart

President Elect—

Mrs. W. R. Hornaday, Des Moines

First Vice President—

Mrs. E. C. Montgomery, Atlantic

Second Vice President—

Mrs. Frank P. Winkler, Sibley

Third Vice President—

Mrs. J. C. Donahue, Centerville

Fourth Vice President—

Mrs. D. F. Ward, Dubuque

Secretary—

Mrs. Fred Moore, Des Moines

Treasurer—

Mrs. J. C. Decker, Sioux City

Directors—

Mrs. W. E. Reiley, Red Oak (One Year)

Mrs. E. A. Hanske, Bellevue (Two Years)

HIGHLIGHTS OF MRS. PACKARD'S ADDRESS

Dissemination to the public of exact facts regarding the achievements of the American Medical Association is the major duty of the association's auxiliaries.

"Because of the increased cost of medical care, resulting entirely from modern methods of diagnosis and treatment, the American Medical Association has made extensive studies of plans that would make adequate care available to all of the people.

"While some have cried out for revolutionary changes, the association has steadfastly refused to deviate from standards that would continue to produce the results that have been produced in the last 30 years."

Most of the physicians' wives have given considerable thought to the outstanding accomplishments of American medicine, but it seems necessary at this time to carry the message of these accomplishments to the public if we are to have their cooperation in the preservation of these standards.

"It therefore becomes highly important that the public relations committee and the program commit-

tee make every effort to carry this type of message to the organizations that they come in contact with."

"It is not our function to simply denounce those, who, because of lack of information, are at odds with the association or profession, but rather our function that these people should know the exact facts, and we believe that the great majority of the American people knowing the exact facts, will not desire any changes in the present program."

Adequate medical care can only be had when medical men are adequately trained and when the public is educated to the value of such medical care.

"In the United States we have both, as was attested by the surgeon general's remark that 1938 was our healthiest year."

The four objects of the Auxiliary are the following: Through its members, to extended the aims of the medical profession to all organizations which look to the advancement of health and education; to assist in the entertainment at all American Medical Association conventions; to promote acquaintanceship among physicians' families that fellowship may increase, and to do such work as may be approved from time to time by the A. M. A.

"Our greatest problem is one of public relations and health education. These come largely under the public relations committee and program committee. Public relations consist largely in acquainting the public with the work and accomplishments of the American Medical Association and the medical profession. Health education consists largely in acquainting the public with the advancement of medical science and the necessity of seeking adequate medical care for the various diseases and the necessity of continued medical research in diagnosis, treatment and prevention of disease, and the part physicians play in the program with various health agencies of the country."

A great deal is heard about adequate medical care for the American people, such care depends on the intelligence of the doctor, his diagnostic skill and knowledge of modern methods of diagnosis and modern therapy.

"It would seem the public should be interested in medical education and training of men to practice the various branches of medicine; for the community is going to be best and most economically served that has the best qualified physicians to render medical care to that community."

Accomplishments of the American Medical Association are standardization of medical schools, reduced from 180 to 76 approved schools; standardization of hospitals and internship training for proper equipment, personnel and staff to guarantee competent medical care; provision for post-graduate education; checks on patent medicines and nostrums through the council on pharmacy and chemistry; maintenance of high standards of ethics, support of legislation for improvement of health; scientific and clinical research aided by awards for carrying on such work; reduction of mortality and morbidity, and lay education in various medical fields.

RESOLUTIONS

The following resolutions of appreciation were made a part of the permanent record of the organization at the business meeting Thursday afternoon:

Whereas, The Woman's Auxiliary to the Iowa State Medical Society in convention assembled has been the recipient of great courtesy,

Be It Resolved, That the Woman's Auxiliary express its appreciation to those who have offered their hospitality: To Mrs. A. E. Merkel and Mrs. Russell C. Doolittle for general arrangements; to Mrs. E. R. Posner and Mrs. C. P. Cook for the card party; to Mrs. Howard D. Gray for opening her home for the tea; to Mrs. J. B. Synhorst and her committee for transportation; to Mrs. Harry E. Ransom and her committee for pages; to Mrs. Hugh B. Woods for the fine exhibit prepared; to Mrs. M. N. Voldeng for the memorial service; to Mrs. L. K. Meredith and her committee for taking care of the registration; to Mrs. John Connell for her entertaining book review; to Mrs. Harold Anderson and her committee; and to the Polk County Auxiliary as a whole; and

Be It Further Resolved, That appreciation be expressed to the hotel for arranging for the comfort of members; to Dr. Marker for his address; to Drs. Hennessy and McNamara for their good wishes; to Dr. C. B. Hickenlooper for his cooperation; to the Speakers Bureau of the Iowa State Medical Society and the Board of Trustees for their financial support during the year; to the press for its courtesy and consideration; to our national president for her inspirational address; to our beloved president who served so loyally and conscientiously during the past year; and to all those unidentified persons whose thoughtfulness has made the convention a success.

COMMITTEE

Mrs. M. C. Hennessy
Mrs. W. S. Reiley
Mrs. F. W. Mulsow

Dallas-Guthrie Auxiliary

Following a luncheon at the Presbyterian Church Hall in Panora, Thursday, April 18, the Woman's Auxiliary to the Dallas-Guthrie Medical Society met in regular session in the Panora Women's Club Room. Mrs. C. A. Nicoll of Panora and Mrs. C. R. Osborn of Dexter were elected delegates; and Mrs. C. E. Irwin of Woodward and Mrs. P. W. Beckman of Perry were named alternate delegates to the state meeting. The president urged special attendance at the state meeting to honor one of our own members, Mrs. E. T. Warren of Stuart, who will be inducted as president this year. Mrs. Elwyn Butterfield, chairman of the Hygeia Committee, announced that the Dallas-Guthrie Auxiliary has received honorable mention and a statue of Hygeia in the national contest for exceeding its subscription quota. The following program was then presented: The Development of Personality, Mrs. Osborn; Health: Local and State, Mrs. C. E. Porter of Redfield; and State and National Items of Medical Interest, Mrs. Warren. After a general discussion of various medical topics, the meeting was adjourned.

Mrs. K. M. Chapler, Secretary

SOCIETY PROCEEDINGS

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held at the Fortner Hotel in Waverly, Monday, May 27. The program consisted of the delegate's report of the state meeting, and scientific motion pictures on Anatomy of the Abdominal Wall, Anatomy of the Abdominal Viscera, and The Story of Cholecystokinin.

P. K. Graening, M.D., Secretary

Buchanan County

Dr. Robert A. Stewart entertained members of the Buchanan County Medical Society at the State Hospital in Independence, Thursday, April 18. Fred M. Smith, M.D., of the State University of Iowa, College of Medicine, Iowa City, was guest speaker, discussing The Newer Treatment of Pneumonia.

Dickinson-Emmet Society

Members of the Dickinson and Emmet County Medical Societies assembled in Spirit Lake, Thursday, April 18, at which time Arch F. O'Donoghue, M.D., of Sioux City, presented an illustrated lecture on The Diagnosis and Treatment of Fractures of the Spine and Pelvis.

Greene County

The regular monthly meeting of the Greene County Medical Society was held in Jefferson, Thursday, May 9. Harold J. McCoy, M.D., of Des Moines, talked on Diseases and Injuries of the Anterior Segment of the Eye.

J. R. Black, M.D., Secretary

Jasper County

The Jasper County Medical Society met in regular session at the Skiff Memorial Hospital in Newton, Tuesday, April 2. After the six-thirty dinner Emory D. Warner, M.D., associate professor of pathology, State University of Iowa, College of Medicine, Iowa City, spoke on The Rôle of Vitamin K in the Bleeding Tendency of Jaundice Patients.

E. F. Besser, M.D., Secretary

Jefferson County

Motion picture films on Radical Mastectomy and Hernioplasty were shown before the Jefferson County Medical Society, at a meeting of that organization held in Fairfield, Thursday, April 18. General discussion followed the presentation of the films.

Linn County

The last scientific session of the Linn County Medical Society before the summer recess was held in Cedar Rapids, Thursday, April 25. Speaker for the occasion was Cecil S. O'Brien, M.D., professor of ophthalmology, State University of Iowa, College of Medicine, Iowa City, who discussed The Oculist as a Consultant. Carl F. Noé, M.D., of Cedar Rapids, opened the discussion of the paper.

Marion County

The regular meeting of the Marion County Medical Society was held in Pleasantville, Thursday, April 18, with Dennis H. Kelly, M.D., of Des Moines and Carl F. Jordan, M.D., also of Des Moines, presenting and discussing the State Department of Health motion picture film on The Diagnosis and Treatment of Pneumonia.

Marshall County

August A. Werner, M.D., professor of internal medicine, St. Louis University School of Medicine, addressed the Marshall County Medical Society Tuesday, May 7, at the Hotel Tallcorn in Marshalltown. Dr. Werner's subject was Hormones in Gynecology.

Pocahontas County

Members of the Pocahontas County Medical Society met at the home of Dr. W. B. McTaggart, in Rolfe, Friday, April 19. Otto Glesne, M.D., of Fort Dodge, was the guest of the society, speaking on Pregnancy Complicated by Poliomyelitis.

Tama County

The Tama County Medical Society met in Gladbrook, Thursday, April 25, for its regular bi-monthly session. Clark N. Cooper, M.D., of Waterloo, presented an address on Nervous Exhaustion, and Mrs. Carrie Burley, Tama County relief director, spoke on The Meaning of Relief. Twenty-three doctors were present at the meeting.

Taylor County

Dr. G. W. Rimel of Bedford and Dr. Roe B. Reed of Clearfield were re-elected president and secretary, respectively, of the Taylor County Medical Society at the annual business meeting of that group held in Bedford, Thursday, April 18.

Woodbury County

Fred C. Hill, M.D., professor of surgery, Creighton University School of Medicine, Omaha, was guest speaker for the Woodbury County Medical Society, Monday, May 20, for a dinner meeting held at the Mayfair Hotel in Sioux City. Dr. Hill spoke on Practical and Surgical Management of Ulcer.

A. Q. Johnson, M.D., Secretary

Twin Lakes District Medical Society

The Twin Lakes District Medical Society will present the following program on Thursday, June 20, at Rockwell City:

Nelson W. Barker, M.D., Mayo Clinic, Rochester, will discuss Hypertension and Renal Disease, etiologic factors; Toxemias of Pregnancy; Endocrine Disturbances; and Prehypertensive States.

Frederic W. Schlutz, M.D., department of pediatrics, University of Chicago, will speak on The Child That Takes Every Disease; The Hypertonic Infant; Acute Gastro-intestinal Disease; and Management of Pyogenic Infections.

Edward L. Cornell, M.D., associate professor of obstetrics, Northwestern University Medical School, Chicago, will present a dry clinic on Edema in Pregnancy; Treatment of Hyperemesis; Habitual Abortion; and Analgesia in Labor.

John S. Coulter, M.D., department of physiotherapy, Northwestern University Medical School, Chicago, will read a paper on Physiotherapy in Arthritis.

Frank R. Peterson, M.D., professor of surgery, State University of Iowa, College of Medicine, Iowa City, will conduct a surgical clinic on Bleeding Peptic Ulcer, and give papers on Rectal Carcinoma; Varicose Veins; and Breast Tumors.

Ira H. Lockwood, M.D., Kansas City, will discuss Medical Economics and the National Physicians Committee.

P. W. Van Metre, M.D., Secretary

MEMBERSHIP ROSTER IN JULY JOURNAL

Once again we call the attention of our readers, and especially the secretaries of county medical societies, to the change in the publication date of the JOURNAL.

The July issue of the JOURNAL will carry the names of members of the Iowa State Medical Society who have paid their 1940 dues. This roster is used extensively, not only in Iowa but throughout the entire country, by many firms, offices and individuals who do not have access to an American Medical Association Directory. Obviously it is a distinct advantage to have one's name included in this roster, and we hope all secretaries will promptly report members' names to this office.

The deadline for printing names in this list is June 15, 1940, and only those who have remitted dues to the central office before that date will be carried as members in good standing in the Iowa State Medical Society for 1940.

MARRIAGES

The marriage of Miss Margaret McGowan of Fort Dodge and Dr. James E. Murtaugh of Charles City, took place Saturday, May 25, at the Corpus Christi Church in Fort Dodge. The young couple will make their home in Charles City, where Dr. Murtaugh has been engaged in the practice of medicine for the past three years.

Miss Lillian K. Jamesson of Cedar Rapids and Dr. James A. Smrha, also of Cedar Rapids, were married Thursday, April 25, at the Immaculate Conception Church in Cedar Rapids. After the wedding trip they will return to Cedar Rapids, where Dr. Smrha has been practicing for the past three years.

DEATH NOTICES

Craig, John W., aged eighty-three, formerly of Lohrville, died May 6 of a heart attack, at the home of his daughter in Chicago. He was graduated in 1881 from the College of Physicians and Surgeons, Keokuk, and at the time of his death was a Life Member of the Calhoun County and Iowa State Medical Societies.

Jenks, William Henry, aged fifty-four, formerly of Tipton, died suddenly April 22, of a cerebral hemorrhage at his home in Pasadena, California. He was graduated in 1913 from Chicago College of Medicine and Surgery, and at the time of his death was a Life Member of the Cedar County and Iowa State Medical Societies.

McNeil, Benjamin F., of Clutier, aged sixty-eight, died May 17, at the Veterans Hospital in Des Moines, where he had been an invalid for the past three years. He was graduated in 1902 from the University of Illinois, College of Medicine, and had been a member of the Tama County Medical Society.

SPEAKERS BUREAU RADIO SCHEDULE

WSUI—Tuesdays at 4:00 p. m.

WOI—Wednesdays at 3:45 p. m.

June 4-5 Menopause

Roy I. Theisen, M.D.

June 11-12 Care of the Teeth

O. E. Hoffman, D.D.S.

June 18-19 Safe Vacations

Herbert E. Stroy, M.D.

June 25-26 Summer Complaints in Children

O. Donald Thatcher, M.D.

KEOKUK MEDICAL COLLEGE REUNION

The reunion of graduates from Keokuk Medical College and Allied Schools will be held Monday, June 17, in Keokuk, with headquarters at the Hotel Iowa. Bruce L. Gilfillan, M.D., of Keokuk, is chairman of the committee in charge of arrangements, and graduates or former instructors in the schools connected with Keokuk Medical College, are urged to make reservations with him as early as possible.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk

DR. JOHN T. MCCLINTOCK, Iowa City

DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines

DR. WALTER L. BIERRING, Des Moines

DR. HENRY G. LANGWORTHY, Dubuque

An Eye Witness to Diphtheria of Sixty Years Ago

CARL F. JORDAN, M.D., Des Moines, Iowa

Seldom do human events of an earlier day assume the outstanding interest that now centers about an eyewitness of several epidemics of diphtheria which raged in Linn County, Iowa, sixty years ago.

In April, 1881, a physician settled in Waubeek (population 300), Linn County, and began the practice of medicine. In June, two months after his arrival, and again in October of the same year, the doctor faced epidemics of diphtheria which caused 54 cases, including fifteen deaths. One of his own children, a girl, eight years of age, succumbed to the dread disease.

On October 24, 1881, as health physician of Waubeek, Ward Woodbridge, M.D., for this was the doctor's name, forwarded to the Iowa State Department of Health a most interesting account of the diphtheria outbreaks which prevailed in Waubeek and vicinity in the period 1879-1881. The report of Dr. Woodbridge, which appeared in the first biennial report of the Iowa State Department of Health, issued in 1882, is quoted in part as follows:

DIPHTHERIA IN WAUBEK, LINN COUNTY, AND VICINITY—REPORTED BY WARD WOODBIDGE, M.D., HEALTH PHY- SICIAN OF WAUBEK

"Diphtheria is prevailing in the village of Waubeek and vicinity, now, for the fourth time in two years and three months. In August, 1879, it made its first appearance in twenty years, and at that time the first case appeared in a family out of town. There was no school, and as far as could be told the case was one of spontaneous development. It proved fatal, and all the other members of the family, including the mother, the father being at that time in the Black Hills, were attacked with it, but all recovered. At the same time, a serious epidemic was prevailing in Cedar Rapids, and the next two cases were undoubtedly imported from there, both proving fatal. There were a few light cases following, and

it declined. The people knew nothing at all of it, and sympathizing with their neighbors visited them, and public funerals were held. Proper cautions were not taken in cleansing, etc., and in the December following another and more severe epidemic broke out, resulting in fourteen deaths. Two physicians, Drs. Crawford and Gremm, were here at the time, and battled manfully with the disease.

* * * *

"There were a few unimportant cases following in the fall and winter of 1880 and 1881. In April, 1881, I settled in Waubeek, in Dr. Crawford's place, Dr. Gremm having previously moved away. June 14th, on returning home from the meeting of the Iowa Union Medical Society, I was summoned to see a child fourteen years of age, and found him suffering from a very severe attack of diphtheria.

* * * *

"The first case made a good recovery, but the next two were fatal, one dying of diphtheritic laryngitis. From this, the disease spread, and seven cases proved fatal in the village and five around it. Some rather remarkable evidence of its contagiousness may as well be spoken of here. A little girl, aged about ten years, had some relatives living in town, and she came to stay all night with them. In the night one of the children was taken sick with diphtheria. She returned home, went to school, and in five days took sick at school. Six days following, two cases occurred in two separate families, and soon two more, all proving fatal.

* * * *

"October 8th I was again called to see a case, which took sick at school. On returning home, I sent my own children at once to their grandparents to isolate them from it if possible, but on the evening of the 7th my girl, aged eight, was taken sick with it, and died the morning of the 10th, and tonight, as I pen these lines, I am watching over another one of my children lying very sick with it. There have been, so far, thirteen cases, with three deaths, and it is still raging. This makes fifty-four cases which have been in my hands since the 14th of June, with fifteen deaths. Now this epidemic has not by any means been confined to Waubeek and vicinity, but has been all around us, both in towns and country.

"The village of Waubeek is situated on the southwest bank of the Wapsipinicon River, Maine township, Linn County, Iowa, and contains about three hundred inhabitants. The ground is lower than it is west and northwest, but on a level south and southeast. It is located on a ledge of rocks, which in places crop out, and there are several fine rock quarries in and around it. There is a fine farming country all around the village, except to the east, and a community of good, intelligent farmers. There is a good water privilege and a mill; a creamery in



WARD WOODBRIDGE, M.D.

almost the center of the town, to which I shall have occasion to refer again. It is not, strictly speaking, a thrifty village. While there are a great many industrious people, there are, also, a great many who seem to live from hand to mouth; and some rather untidy housekeepers, which, of course, is very inviting to contagious and infectious diseases.

* * * *

"I have said that diphtheria was not confined to Waubeek and its vicinity. It is prevailing now in and about Anamosa, twelve miles distant, in and about Springville, eight miles distant; and in the country eight miles west and northwest; also, to some extent, in Marion and Cedar Rapids, but not to the extent that it has in our vicinity. It was in Cedar Rapids before it appeared in Waubeek.

* * * *

"So, it would seem that whatever the circumstances are that so favor its development and progress, they

could not bring it about without the presence of its own peculiar contagious germ. (Some gentlemen may object to the term, germ; they may call it something else.) So epidemic and contagion could hardly be separated. There are isolated cases occurring all the time. Sporadically—sometimes one; sometimes a few in a place. Only last week a girl fifteen years old died with it, and no case had been within five miles of the locality for three months, they living in the country, several miles from all towns. Thus, after all, we are obliged to say that the diphtheritic germ is present with us, and that occasionally an assemblage of circumstances favor its development, and that the nature of both are unknown to us. In its nature it is worse than scarlet fever, for it is sporadic, epidemic, and contagious; and there seems no possible escape from it. I am often asked, as I presume all physicians are: 'Is there no preventive?' My invariable reply is only, to get the general health up to as high a standard as possible, so that in case an attack should come, perhaps it may lighten it. It is a terrible scourge, snatching away the youth, beauty and promise of our land, and the disease is assuming alarming magnitude, not only with us, here in this vicinity, but all over the country, and in fact the world. There have been, in the two years and three months, twenty-nine deaths in and around Waubeek, and doubtless as many more in a radius of ten miles. It will be a happy time for the human family when the profession finds some plan of treatment that will more nearly control it than any now known; but at present there is a large class of cases, and doubtless always will be, that the medical arm is too short to reach; for when we reach the point when science is equal to disease, death will be banished from the land—a point inconsistent with nature, and never designed by Him who doeth all things well.

Respectfully and fraternally yours,

Ward Woodbridge, M.D.

Waubeek, Linn County, October 24, 1881."

Dr. Woodbridge's report, written in 1881 when the Iowa State Department of Health was in its infancy, is remarkable in revealing the accurate conception which he had of the infectious nature and manner of spread of diphtheria. The report is of further interest and significance in that its author assumes that diphtheria is due to a specific disease germ; it may be noted that Klebs and Loefler did not announce the discovery of the diphtheria bacillus until 1883-1884. Most remarkable of all is the fact that Ward Woodbridge, M.D., eyewitness, investigator and reporter of a series of severe epidemics of diphtheria which visited Linn County, Iowa, sixty years ago, observed his ninety-first birthday last December. He was born "in the golden days of '49."

It was the writer's rare privilege on April 9, 1940, to visit Dr. Woodbridge in his home in Central City, close to Waubeek, to find him mentally alert and as interested in present day efforts to safeguard children and communities against diphtheria as he was in the struggle against this disease during epidemics of a decade more than a half century ago.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

TEXTBOOK OF NERVOUS DISEASES—By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated by Webb Haymaker, assistant clinical professor in neuro-anatomy, University of California. The C. V. Mosby Company, St. Louis, 1939. Price, \$10.00.

OBSTETRICAL PRACTICE—By Alfred C. Beck, M.D., professor of obstetrics and gynecology, Long Island College of Medicine. Second edition. The Williams and Wilkins Company, Baltimore, 1939. Price, \$7.00.

THE NEWER KNOWLEDGE OF NUTRITION—By E. V. McCollum, Ph.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University. Fifth edition, entirely rewritten, illustrated. The Macmillan Company, New York, 1939. Price, \$4.50.

SYNOPSIS OF PEDIATRICS—By John Zahorsky, M.D., professor of pediatrics, St. Louis University School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.

POPULATION RACE AND EUGENICS—By Morris Siegel, M.D., 546 Barton Street, East, Hamilton, Ontario, Canada. Published by author, 1939. Price, \$3.00.

TUMORS OF THE HANDS AND FEET—By George T. Pack, M.D., assistant clinical professor of surgery, Yale University School of Medicine. The C. V. Mosby Company, St. Louis, 1939. Price, \$3.00.

CANCER OF THE LARYNX—By Chevalier Jackson, M.D., and Chevalier L. Jackson, M.D., Temple University Medical School, Philadelphia. W. B. Saunders Company, Philadelphia, 1939. Price, \$8.00.

SCLEROSING THERAPY—Edited by Frank C. Yeomans, M.D., professor of proctology, New York Polyclinic Medical School and Hospital. Williams and Wilkins Company, Baltimore, 1939. Price, \$6.00.

THE NEW INTERNATIONAL CLINICS, VOLUME IV, NEW SERIES TWO. Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.

THE ELECTROCARDIOGRAM AND X-RAY CONFIGURATION OF THE HEART—By Arthur M. Master, M.D., associate in medicine, The College of Physicians and Surgeons, Columbia University. Lea and Febiger, Philadelphia, 1939. Price, \$6.50.

THE 1939 YEAR BOOK OF GENERAL SURGERY—Edited by Evarts A. Graham, M.D., professor of surgery, Washington University School of Medicine. The Year Book Publishers, Chicago, 1939. Price, \$3.00.

LOVE PROBLEMS OF ADOLESCENCE—By Oliver M. Butterfield, Ph.D. Emerson Books, Inc., 251 West 19th Street, New York, 1939. Price, \$2.25.

BOOK REVIEWS

THE NEW INTERNATIONAL CLINICS,

Volume IV, New Series Two

Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1939.

This volume of the Clinics consists of fifteen original contributions on a wide variety of medical subjects, three clinics, and two excellent reviews. There are two articles on the use of sulfapyridine and a clinical study of serum treatment in pneumonia. Blades and Graham of St. Louis present the surgical treatment of intractable pulmonary hemorrhage in which they recommend radical collapse or extirpation of a portion of the lung in selected cases of hemoptysis. Careful localization of the site of bleeding by bronchoscopy is a necessary preliminary measure. There was one death in a group of nine patients treated surgically for hemoptysis. Kirsner and Palmer of the Billings Hospital record their experience with massive gastric hemorrhage, and therapy is discussed in detail. There is an excellent paper on the Treatment of Angina Pectoris by Franz M. Groedel which is thorough and practical. Samuel Weiss discusses ascites from the anatomic, physiologic, neurologic and mechanical standpoints, and gives a thorough presentation of the differential diagnosis.

The reviews on the subjects of Recent Concepts of Urinary Lithiasis and of Ulcerative Colitis are splendid contributions which correlate the present knowledge of these conditions. The compilation of the present concepts of the various diseases presented makes the Clinics a veritable encyclopedia of modern medicine.

D. K.

CHEMOTHERAPY AND SERUM THERAPY OF PNEUMONIA

By Frederick T. Lord, M.D., clinical professor of medicine, emeritus, Harvard Medical School. The Commonwealth Fund, New York, 1940. Price, \$1.00.

This small volume should be placed in the hands of every physician who treats pneumonia. It is a concise and complete summary of the present theory and practice of the drug and serum therapy of pneumonia. There are splendid chapters on diagnosis and the recognition of the type of pneumococcus infection. The discussion of the factors of immunity concerned in the recovery from pneumonia presents the latest knowledge of this subject. The theory, the practice and the results of chemotherapy and serum therapy are discussed in detail.

The practicing physician will find in this excellent volume all the information he has been seeking, assembled in one hundred and fifty pages of concise and accurate information on the subject of pneumonia.

D. K.

PERIPHERAL VASCULAR DISEASES

By William S. Collens, M.D., Brooklyn; and Nathan D. Wilensky, M.D., Brooklyn. Charles C. Thomas, Publisher, Springfield, Illinois, 1939. Price, \$4.50.

This book fills a place in medicine which has recently been of much interest, that of the early and incipient stages of peripheral vascular disorders. The reviewer believes that it is a timely treatise of disorders that have been extensively and widely investigated and incorporated in medical literature.

The text deals with vascular disorders in an orderly fashion, including anatomy, physiology, pathology, symptoms, signs, methods of examination, diagnosis, and valuable suggestions to differentiate vascular disorders. The authors devote a complete section to the accepted methods of treatment, their evaluations with respect to basic physiology and the ultimate prognosis. Methods of treatment include heat, massage, exercise, iontophoresis, mechanics, x-ray, surgery and hyperemia. The concluding chapters deal with the treatment of peripheral vascular sclerosis, thrombo-angiitis obliterans, vasomotor disturbances, embolus and thrombosis, and varicose ulcers.

This volume is a complete and well organized presentation of peripheral vascular pathology, and this new classification will help the clinician recognize early vascular changes and institute modern accepted therapy.

J. W. C.

SEXUAL PATHOLOGY

By Magnus Hirschfeld, M.D. New revised edition. Emerson Books, Inc., 251 West 19th Street, New York, 1940. Price, \$2.95.

This volume duplicates the material thoroughly covered by Kraft-Ebing's "Psychopathia Sexualis", and there seems to be no real purpose in further repetition of this sordid phase of human life. The subject matter is covered in three chapters: sexual symbolism, hypereroticism and impotence. The author illustrates the various abnormalities by case histories.

D. K.

THE VITAMINS

A Symposium arranged under the auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association. American Medical Association, Chicago, 1939. Price, \$1.50.

So much information on this subject has been printed that it is difficult even for experts to keep up with the literature. The present volume is a welcome compendium of authoritative articles concerning these accessory food factors. There are discussions of the chemistry, physiology, pathology, pharmacology and therapeutics, methods of assay, food sources and human requirements of each of the important vitamins. The volume is composed of thirty-one chapters written by experts, and is published under the auspices of the Council on Pharmacy and Chemistry and the Council on Foods of the American Medical Association.

This book should prove to be an indispensable volume for the library of every physician.

D. K.

ELMER AND ROSE PHYSICAL DIAGNOSIS

Revised by Harry Walker, M.D., associate professor of medicine, Medical College of Virginia. The C. V. Mosby Company, St. Louis, 1940. Price, \$8.75.

This book was written primarily as a textbook for the medical student to aid him in making a physical examination. Since the physical examination of the patient is still one of the most important factors in the practice of medicine, it has an important place in every physician's progress.

Dr. Walker has assembled in a readable form all that should be known in physical diagnosis. Each diagnostic procedure is entirely covered before another is discussed. The illustrations are adequate and the book is written on very good paper.

The chapters by Dr. Drew Luten upon diseases of the circulatory system are full and complete, and include many electrocardiograms and x-ray pictures showing various heart lesions. The chapters written by Dr. James A. Shield upon the neuropsychiatric examination explain the proper procedure for eliciting this special type of history, and include a detailed description of the various methods and tests.

Dr. Porter P. Vincent wrote the chapter upon bronchoscopy, esophagoscopy and gastroscopy. The latter is rapidly becoming an established procedure.

Any doctor will receive much benefit by carefully studying this treatise.

E. B. W.

THE PHYSIOLOGICAL BASIS OF MEDICAL PRACTICE

By Charles H. Best, M.D., professor of physiology, University of Toronto; and Norman B. Taylor, M.D., professor of physiology, University of Toronto. The Williams and Wilkins Company, Baltimore, 1939. Price, \$10.00.

The second edition of this very comprehensive text has been modernized and includes an additional section on the special senses. The authors successfully evaluate the importance of physiology in the practice of medicine, and they link many physiologic processes to the clinical aspects of medicine.

The work covers all the organs and systems of the human body, incorporating the functions and anatomy of each, and many of their physiologic clinical aspects. The text imposes upon the reader the importance of an intelligent understanding of physiology if one is to perceive clearly the clinical aspects of disease. The authors include sections on blood and lymph, the blood circulation, respiration, urine excretion, digestion, metabolism, the endocrine glands, the nervous system, and the new section on the special senses.

The volume will prove an invaluable addition to the library of every practicing physician, regardless of his specialty.

J. W. C.

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THE PROBLEMS AND THE AIMS OF THE PROFESSION OF MEDICINE*

ALPHONSE McMAHON, M.D.,
Saint Louis, Missouri

The profession of medicine throughout the ages has been recognized as possessing the unique quality of nobility of purpose. Individuals admitted to the profession devoted themselves, by oath and by desire, to the care of the sick. The requirements for admission were rigid and inflexible, demanding qualities of character consistent with such a high calling. It was recognized by the early fathers of medicine, who served as protectors of the health of the people, that this responsibility for the care of the sick could be allotted only to those who showed themselves, by their actions, to be motivated by high principles of service to humanity. This spirit of service, unswerving, unqualified and undemanding, has existed in the medical profession through centuries of medical practice. It is implanted, fostered and developed in the mind of each student as he passes through the years of his training. It has become as much a part of his education as are the scientific subjects which complete the curriculum. No age of medical training has been exempt, no age could be exempt, from this motivating spirit of service, for it is one with the science and the art of medicine.

In rendering service to humanity the outstanding characteristic of physicians has been that of self-sacrifice. This quality has been evident in the limitation of their own personal desires and activities in order to further the ends of professional service. It is manifest in their earnest striving to improve their ability and skill in order to be always able and ready to extend more effective service to the sick. The same spirit that urged them to enter the profession lives constantly in their daily lives, serving to motivate their progress

when they are honored by being permitted to practice their profession.

There is no desire in physicians to remain static, for this is tantamount to retrogression. The scientific spirit which pervades their minds constantly stimulates them to delve deeper and deeper into the secrets of science; to unearth, if possible, newer means of treatment or new cures and to avail themselves of every associated science, possibly related to medical science, to the end that complete knowledge may become an integral part in the restoration of the ill to health.

Each generation of physicians has contributed some vital facts which could be added to the total of the scientific knowledge which has, through the years, advanced the profession and professional service to its present high level. The professions of all countries have vied with each other to discover new scientific principles or new applications of old principles. Rivalry has been friendly and the knowledge gained was interchanged with colleagues through the medium of personal communications and later through more widely spread scientific publications. This free and unhampered exchange of thought resulted in an elevation of professional standards throughout the world. It was unthinkable to retain or repress scientific knowledge to the advantage of one country or one group. The fact of the universality of disease, knowing no national barriers, has been accepted by the medical profession of every country so that each group has cooperated wholeheartedly with all others in bringing to the cure of disease, all scientific facts that might be of value.

The true physician combines in himself the science of medicine with a sympathetic understanding of his patients. This combination of science and a high degree of understanding are expressed in their finest sense by the art of medical practice. This art enables the physician to assist his patient through the vagaries of disease with the least possible mental and physical disturbances.

*Presented before the Eighty-ninth Annual Session, Iowa State Medical Society, Des Moines, May 1, 2 and 3, 1940.

These two great prerequisites of successful practice, science and art, are present in physicians in varying degrees. A few outstanding luminaries in the field of medicine have possessed both in a large measure. Physicians peculiarly qualified to excel in the purely scientific or research fields of medicine may never develop the art of medical practice, while those gifted less well in the scientific fields are able to extend to many patients the value of the scientific facts, understood more completely by their colleagues, through unusual ability in the art of medicine. The modern physician is trained, by most rigorous methods of education, to acquire both a high degree of scientific knowledge and at the same time to achieve a knowledge of the art of medicine so that he can more effectively discharge his responsibilities to the sick. The effectiveness of these methods of training in this country is evidenced by the unusual skill possessed by our physicians.

The attitude of the physician toward illness in general and toward the individual who is sick, an attitude of self-sacrifice with a desire to restore health as quickly as possible, combined with a willingness on the part of the practitioner to be subservient to the demands of his patients and to strive to serve them in many capacities other than that of rendering medical service, has given a superior quality to the doctor of medicine. This desire to render unfailing service has made the medical profession peculiarly aware of its problems, its responsibilities and its duties. It is no less aware of them today than it has been throughout the centuries; it is cognizant of the fact that its first duty for the immediate health of the people is the care of the sick; it understands that this responsibility devolves upon it alone, because it alone possesses the necessary training to understand and solve the problems of illness. It has accepted the challenge of disease throughout the ages and has striven in every way possible, at all times, to meet this challenge and to conquer disease; it has no desire to shirk its responsibilities; it is willing and able to meet them.

The medical profession of the United States has striven constantly to elevate the standards of medical practice. As a result of the improvement of medical practice in this country, the number of years a man lives has been nearly doubled, increasing from thirty-five years to sixty-two years. The general health level in this country has been steadily elevated. The year of 1938 found the highest general level of health and the lowest death rate ever known in the United States.

In spite of the quality of service rendered to the public of this country by the medical profession, in spite of the self-sacrifice of the profession,

in spite of its interest in maintaining a high level of health by continued study and research, efforts have been made in some quarters to create in the public mind a distrust of its purposes and activities. For the first time, a concerted effort has been made to raise a doubt as to its honesty and ability. Throughout the country an adverse criticism has been spread that has as its keynotes the opinions that the profession, in some way or another, or in many ways not quite definitely defined, has failed in its trust to the public; that the health of the public, resting in its hands for ages, has been misplaced; that the interest of the profession in the practice of medicine has been solely economic; that humanitarian motives always guiding the profession in its relation to the public have disappeared and in their place have been substituted a rank commercialism and a desire to exploit the public. The sacrifices of the profession have been minimized and misinterpreted; the interest of the practitioner, which prompted a service beyond the mere rendering of medical care, is construed as spurious and superficial, devised in the hope of obtaining a greater income through unnecessary practice. The nobility of the profession has been undermined, and its scientific achievements have lost their significance in the minds of those who are swayed by these criticisms.

It is my belief that this attempted destruction of the trust and confidence of the public in the profession is detrimental both to the public and to the profession, since the successful care of the sick must be based upon trust and confidence. The treatment of disease is not wholly a matter of administering pills and potions. Today, before treatment can be administered, a more thorough and complete understanding of disease processes is necessary. This understanding requires an exhaustive study of the patient as a whole, his personality, his problems and his physical complaints. The destruction of the confidence of the patient in his physician by the creation of doubt as to the ability and honesty of the physician results in a withdrawal from the physician of that necessary open-mindedness and frankness which are absolute requirements for understanding and treating disease processes.

It has been contended by those who are interested in changing the present methods of rendering medical service in this country, that with the present system of medical practice, many of the sick are unable to obtain adequate medical care. The analyses of surveys of medical care have been used to show that many communities are without physicians and hospital facilities. The cause of these deficiencies is placed at the door of medicine for it is stated that the profession is unaware of

the actual problems existing in sparsely settled districts and that there is a lack of interest and desire on the part of the profession to understand and to settle these problems. There is little said, in these surveys, about the economic problems existing in these same communities where few of the necessities of life are obtainable by the inhabitants.

It is further intimated by the opponents of the present system of medical practice that the profession of medicine is unable to comprehend general socio-medical trends and therefore is not properly equipping itself to meet these trends. A changing economic system, they contend, requires a different type of medical practice and that to institute such a type of medical practice a new system of care must be developed that will distribute adequate medical care under these new economic conditions. The proponents of the new system contend that the profession, owing to its constant engrossment with routine medical practice has failed to develop a mechanism suitable to render adequate service. It has been assumed, by the more vehement and perhaps less judicious, that the medical profession has been derelict in its duty to the public by its incapability, and by its lack of effort to understand the problems existing in the matter of public health.

In an effort to determine for the entire profession of the country the actual need for medical service and its available supply, the American Medical Association in 1938 conducted its own survey of the problem. The survey was participated in by thirty-eight constituent state medical societies and 615 of their component county medical societies covering over 765 counties. The population embraced by the survey was 43,790,068, of which 28,964,853 were residents of urban localities and 15,095,215 residents of rural areas. More than 17,000 physicians and 3,000 dentists responded to the questionnaire. Information was also collected from all those who were in any way interested or responsible for local or statewide arrangements for distribution of medical service and facilities.

It was thought by those who planned and conducted this survey that exact information could be obtained from the physicians residing in the counties surveyed, for these men would of necessity be more familiar with the medical problems of their particular counties than would some investigator coming into the community from outside areas. It is certainly within reason to expect the physician who is rendering medical service in a community to be keenly aware of the need of the service, since it has been his privilege and his duty to meet the medical needs of his community. It was from these sources and also from all agencies, organi-

zations or other individuals in the communities that the reports were received. These reports were later grouped by states and studied in greater detail by the committee of the American Medical Association.

This survey has been of unquestioned value in the determination of the medical needs and supply of the country. It gives a fairly accurate cross-section of the population with its medical service problems. It was revealed by the survey that the medical profession donates more than one million dollars a day in services to indigent medical patients and that medical service without charge to the patient was rendered to 2,611,451 patients, a group representing about five per cent of the population studied. It was shown further that medical service was available in ninety per cent of the cases needing and desiring the service. In an exhaustive study of this same problem in the state of New Jersey, a widespread call was made over the radio and in newspapers for information concerning patients who were unable to obtain medical service. Only 127 answers to this call were received. Investigation of these answers indicated that while service was at all times available in the cases mentioned, many of these individuals, as reported to the committee, did not know how to obtain this service.

Significant suggestions for improving medical service were born of this survey. If it were possible fully to carry out these suggestions, the problem of medical care would be closer to a solution. A critical analysis and study of the questionnaires based upon the actual content of the answers and upon the personal opinions and recommendations for improving medical care resulted in the following conclusions by the Committee:

1. Certain prepayment plans should be studied and developed.
2. The profession is favorably inclined to accept changes to fulfill local community needs.
3. The health of the community could be well improved by improvement in living conditions and a greater supply of the necessities of life.
4. There should be a more direct association through the central organization of the American Medical Association, the state and county societies.
5. There should be a working alliance between the various agencies allied in medical care.

The first of these conclusions has stimulated many state and county medical societies to initiate prepayment health plans to render medical service to those patients and their families in the lower income brackets. In county societies, such plans have been in operation for several years. Through these plans for rendering medical service, it is

hoped that immediate and adequate medical service may be brought to the underprivileged and to those who might hesitate to incur medical expenses. Many of the state medical societies fostering such plans have gone to great expense in their study and development with the hope that such plans may prove to be solutions of the problems of rendering adequate service to those patients for whom an extraordinary medical fee for unusual or prolonged service might prove to be an economic catastrophe. While prepayment health plans are largely in an experimental stage, much can be learned from them as to the actual medical needs of communities in which they are operating and from them much information may be gained for ultimate plans which will solve the problem of medical care.

The second conclusion gives evidence of the sincerity and the interest of the profession in assisting in a change of medical service that will provide more adequate care to the sick of the community. In some communities, so-called "depressed regions," where the "indigent" constitute a large percentage of the population the physician of the communities report that more than fifty per cent of their services are given without pay. The changes recommended and acceptable to the profession do not include, however, any changes in the present system of professional relationships.

The other conclusions presented by the Committee need no special elaboration at this time. This survey has done much to attract the attention of the profession to its own problems. It has given it courage, in the belief and hope that its problems can be solved. It has brought the profession of each state in touch with the activities and needs of other states and so, by comparison and study in methods of rendering medical service, more effective local systems of service may be established.

An important fact in the question of medical care as deduced from the study is that the problem of rendering medical care is a problem of the community in which the care is needed and consequently no general plan for rendering medical care that will adequately answer all the problems of every community can be elaborated. Information derived from the community as to its needs should be the basis of judgment upon which these needs are supplied. An attempt at excessive supply of medical care in all communities may be as wasteful and destructive to the ultimate purpose as a deficient supply would be ineffective in solving the problem.

In addition to this effort to determine the problems of medical care and medical needs, the profession of this country has done much toward

improving its own status. The movement to improve itself originated within the profession and has not been impressed upon it from without by any necessary demands for better service. The profession, in striving to elevate the standards of medical practice, realized years ago that to effect this end, plans must be laid to improve the quality of medical training. Early in the present century, among the 160 medical schools that were dispensing a type of education, there were listed many of extremely low grade, graduating their students without the requirements necessary to render adequate care. Little attention was paid to necessary training for admission to or for graduation from these schools. A survey conducted by the Council on Medical Education and Hospitals of the American Medical Association, revealed an appalling lack of standards in medical education. Through the efforts of this Council there has occurred, over a period of years, a reduction in the number of medical schools with an elevation of the standards of the schools remaining in the teaching field. The faculties of these schools were improved, adequate buildings and satisfactory equipment were insisted upon as necessary requirements to insure high educational levels. By these efforts the medical profession assured the public of the United States that the graduates of its class A schools entering the practice of medicine were properly prepared to render a service which was equal to any medical service in the world.

These high standards of education are effectively continued through the supervision of interne and resident teaching in recognized hospitals. The eligibility of hospitals to meet the requirements for standardization of the Council on Medical Education and Hospitals is based among other things upon the type of teaching and supervision given to the interne and resident staff. Through this supervision the young graduates continue their education and prepare themselves for certification by Specialty Boards after the necessary years of training. At the present time Specialty Boards for thirteen of the special branches of medical practice are now organized and have been approved. Candidates for certification are properly examined to determine their qualifications for recognition as specialists. This recognition gives an added assurance to the public that the men who practice specialties in medicine and surgery are capable of rendering the finest type of service obtainable in these specialties.

The education of the physician does not stop, however, when his interne service is completed or when he has been certified by a Specialty Board. Postgraduate education for general practitioners and for those physicians less privileged is carried

on continuously, by the medical schools of the country in courses and clinics, by the state and county medical societies in their regular meetings, by clinical assemblies and "refresher courses" and by meetings of special societies. The annual meeting of the American Medical Association attempts to satisfy the educational demands of the general practitioner and the specialists by its well diversified program and its unexcelled scientific exhibits. These supervised educational plans existing throughout the country together with the general and special journals of medicine and surgery, some recognized as the finest journals in the world, constantly assist the profession in improving itself and in maintaining contact with the developments in medical science so that it may keep abreast of all advances in medicine.

Postgraduate educational opportunities, of which the practitioner avails himself, require the expenditure of time and money. They are obtained at times only with great sacrifice on the part of the physician, but this sacrifice is made without hesitation in order that he may fit himself to render a more adequate and a more perfect service to the sick of the community. He becomes a more skilled physician through his own efforts and through the efforts of his colleagues who are only too willing to share with him the knowledge they possess. Physicians more fortunately placed in the larger clinics, having a greater opportunity to become familiar with the newest advances in medicine, give eagerly of their time and energy to convey information to those less fortunately placed. The interlocking of this vast system of postgraduate medical education permits it to be extended to the farthest reaches of medical practice. It projects itself into the county units so that the general practitioner who has little time may, by slight effort, attend the local county society meetings at great benefit to himself and to his patients. Without fear of criticism for self-flattery, I believe it can be said that no other profession in the world makes the same sacrifices or exercises the same efforts to improve itself for the same high purposes.

The activities of the profession in the elevation of hospital standards have as their purpose the improvement of service to the public. The supervision of hospitals has given assurance to the public that the service received in these supervised hospitals is as expert and complete as can possibly be obtained. The requirements demanded of the hospitals are rigorous, if they desire to obtain the approval of the profession. Equipment must be adequate to meet the needs of the community; clinical records must be maintained so that case records are complete; the resident staff must be of

a size and quality able to maintain a satisfactory standard of service within the hospital; the visiting staff must be of a high professional and personal standard and must be closely supervised so that the public will be protected at all times.

In an effort to extend this service to the greatest possible number of people, numerous prepayment or group hospital plans have been developed and are functioning under the control of county medical societies throughout the country. They have been eminently successful in rendering hospital service at a low cost to patients within the lower income brackets in practically all communities where they have been established. These group hospital associations have brought to the public a type of hospital service which is essentially available to all the people. They have reduced delays in hospitalization caused by the hesitancy on the part of patients to contract for hospital services, for themselves or their families, the expense of which unquestionably could be met only with some difficulty to the patient. This type of service will result in a higher level of health in the community. It is already showing results in those communities in which it is being effectively used.

From the foregoing it may be seen that the medical profession of this country has been making earnest efforts to solve the problems of medical care for the American people. The House of Delegates of the American Medical Association, in which every county medical society of the Association is represented through its component state delegates, has given serious thought and study to these problems. In its annual sessions and in special sessions a large portion of the time has been devoted to these pressing questions. The representatives of the profession have been eager to arrive at a solution of the difficulties confronting the medical profession and have been desirous of developing some workable plan to bring adequate medical service to everyone needing or desiring this service. As a result of numerous deliberations of the House of Delegates and after mature study the Board of Trustees of the Association arrived at definite conclusions regarding medical care and service to the sick of the community. These conclusions are embodied in a platform of medical service which the Board of Trustees believes may be used as an efficient guide in the development of federal health plans. The platform insists upon the autonomy of the county and the state in matters pertaining to health and urges the maintenance of the present system of medical practice. We are aware of the fact that the presentation of this platform may be needless repetition to many physicians who know its contents

thoroughly and who, because of their previous studies in the economics of medical service, are well prepared to discuss the subject. Nevertheless, we believe that the repetition may be of value to us all, for upon this platform of the American Medical Association the members of our profession are basing their hopes that the present system of medical practice, in which there exists a professional and private relationship between patient and physician, may continue in existence. They believe that this is the best and most successful type of medical practice for the people of the United States. The purpose of the platform is not the confirmation of any selfish trends of the profession. It has been promulgated to aid in maintaining a system of practice which has brought the health of this country to the highest level of any country of the world today. The platform of the association is as follows:

1. "The establishment of an agency of federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy."

This recommendation is in the interest of efficiency of administration of the medical and health affairs of the government. Under the plan, the control of the medical and health functions of the United States would be centralized. These functions would be more effectively coordinated if they were directed by one single federal health agency rather than distributed through various departments, bureaus and federal agencies as they now are. Reorganization of the federal government is recommended by our President on the basis of an increase in efficiency, avoidance of duplication and saving of vast sums of money. As applied to the health of the country it is even more important to have these functions under a different type of organizational plan.

2. "The allotment of such funds as the Congress may make available to any state in actual need for the prevention of disease, the promotion of health and the care of the sick on proof of such needs."

The profession is well aware of the need of federal funds for medical purposes. Physicians have always given freely of their time and service in the care of the sick without hope of financial return. The profession is further desirous and anxious to see that every person seeking medical care is supplied with such, but they oppose the allotment of unnecessary funds and recommend that only funds be appropriated and administered by the federal health agency on proof that these funds are actually needed in the community.

3. "The principle that the care of public health and the provision of medical service to the sick is primarily a local responsibility."

Each community has a distinct obligation and responsibility for the care of its own sick and hence should make every effort to obtain local funds to take care of these needs. The failure to accept this responsibility with the consequent tendency to solicitation of federal funds when not manifestly required would indicate on the part of the community a lack of a proper sense of its democratic prerogatives. Each community should keep its own house in order to the fullest extent of its ability, but where this is not possible by its local funds then assistance should be requested.

4. "The development of a mechanism for meeting the needs of expansion of preventive medical service with local determination of needs and local control of administration."

The need for the extension of preventive medical service for all of the people is well recognized by the profession. The determination to extend this service and the plans for the execution or the carrying out of such service should be determined in the community with the assistance of the federal health agency. Local and federal funds should be expended by some type of mechanism developed in each community.

5. "The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration."

The problem of the indigent and the medically indigent is one which varies specifically with each community. There is little difficulty in the evaluation or the determination of the indigent; however, the determination of the medically indigent, that is, the individual who is able to provide himself and his family with the necessities of life, but who is unable to meet any medical emergency, constitutes a different problem for each specific community. The agencies of the particular community are in far better position to determine the classification of such an individual; therefore, it is felt that provision of medical care to these groups, both the indigent and the medically indigent should be left to local agencies who may determine the nature of the need and who may also control the expenditure of such funds as may be available for this purpose.

6. "In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established."

In this plank it is recommended that in any federal health program, it would be far more economical to utilize existing qualified facilities than

to attempt to develop new facilities, for it has been shown in the United States, that the percentage of hospital beds per thousand of population is higher than that of any comparable population of the world and that at the present time there are many non-profit voluntary hospitals which owing to the financial situation represent a considerable lack of occupancy. These hospitals would be available and could be utilized in providing needy sick with hospitalization.

7. "The continued development of the private practice of medicine with such changes as may be necessary to maintain the quality of medical services and to increase their availability."

The medical profession believes that the private practice of medicine has been instrumental in developing higher standards of medical practice in the medical service of this country than are available in other countries. It maintains that the outstanding reduction in sickness and death rate in the United States is due to this type of service. It recognizes that changing economics may necessitate changes as applied to the lower income level and may indicate changes in the plans of payment for medical service and hospitalization. These facts would indicate that the profession is keenly aware of the necessity for changes to suit the changing economic system. It, however, insists that in these changes, the private practice of medicine should be maintained at all cost. The private practice of medicine is entirely compatible with the changes recommended by the medical profession.

8. "The extension of public health and medical services consistent with the American system of democracy."

Here is stressed the importance of the maintenance of the American system of democracy in any health plan advocated for the people. Destruction of the sense of responsibility of the individual which can only result in the lack of initiative and desire to achieve will be destructive of all progress. Freedom of will creates a sense of self-reliance; self-reliance keeps alive the pioneer spirit which has made this country what it is today. The pioneer spirit is concerned with conquest and accomplishment which bring with them security and a broader, more useful and more satisfying life. Any system of medical practice which will destroy the responsibility of the patient to the medical service rendered will ultimately destroy the value of that medical service and it will further destroy the value of all things towards which responsibility is lacking. Chaotic subservience will be the result of such changes instead of a free spirit of living.

CONCLUSION

In conclusion let me again stress the fact that we are members of a profession that has adhered to the nobility of its purposes throughout its entire existence. The profession will continue to adhere to its aims and ideals in spite of trends and facts that may tempt it to swerve from its high purposes.

We as physicians have been granted a rare privilege in this membership in the profession of medicine but we must remember that the privilege carries with it duties and responsibilities which we can never shirk.

The discharge of these duties and responsibilities demands of the physician, unflinching courage in his professional work, and unalterable faith in the aims of the profession, an understanding of the complex problems that necessarily arise in the care of the sick, a tempered sympathy for the afflicted, a social consciousness that carries with it a clear idea of his relation to the social system in which he lives, and a broad, sound and constantly increasing knowledge of the science and the art of his profession. With these qualities in the physicians of this age, no problems are too great to solve.

We have been given the sacred right of restoring health to the sick, of bringing happiness to the family of the afflicted, of easing the burdens of mankind and of making this, our country, a country of healthy, happy and contented people. We have contributed to this health largely in the past and we shall continue to do so in the future. In doing our work well, we discharge in a measure, our duty to our country, to our profession and to ourselves.

It is incumbent upon each and every one of us to familiarize ourselves with our local public health problems and to aid in the problems of medical care arising in our communities. These are duties we cannot shirk, nor can we excuse ourselves from responsibilities in these matters by pleading the fact of absorption in our practice. Our range of vision and our usefulness must extend beyond the confines of our own limited occupations.

It is only through the efforts of the individual members of the profession in matters pertaining to the health problems of his community that county societies, state societies and the American Medical Association can be satisfactorily effective in carrying out programs designed by these organizations to solve the health problems of this country. Organizations are no stronger than their individual members. They possess no particular or superior quality of action which is not found in their members. Their strength depends upon

the interest, the enthusiasm and the activity of each member, while their effectiveness in accomplishing their purposes will depend upon the conjoined efforts of all of the members.

Medical organizations are no exception to this rule. If we would have them serve their purpose of elevating the practice of medicine and maintaining it at a high level for the benefit and the protection of the public, if we would have them elaborate and carry out plans for a greater extension of medical service to the people, if we would have them assist in raising the standards of health of this country to even higher levels than exist at present, if we would have them maintain their position of trust and confidence in the mind of the public, a position which they have enjoyed through countless centuries, if we would have them, through their vast store of knowledge of the medical problems of these United States, serve in the position of advisers to the Federal Government, in its earnest desire to improve the health of the public, then we must each, individually, assist our medical organizations as freely as we can by contributing generously of our time, our interest and our energy and by answering the demands put upon us to the end that proof will never be lacking of our interest in the problems of medical care and of our desire to make available to the people of our country a medical service that is the envy of the medical profession of the world.

ECTOPIC PREGNANCY*

ADDISON W. BROWN, M.D., Des Moines

Extra-uterine gestation occurs frequently enough as a complication of pregnancy for every physician to come in contact with this dramatic catastrophe several times during the course of his practice. It is estimated that about 10,000 ectopic pregnancies occur annually in this country; most observers find the ratio to be 1 to 300 intra-uterine pregnancies. The mortality rate from ectopic pregnancies varies from two to five per cent and as a cause of death it accounts for three to four per cent of the national maternal mortality rate.

Any pregnancy that arises in an extra-uterine location is considered ectopic. Faulty implantation of the fertilized ovum may occur anywhere along the route from the ovary to the uterine cavity, but more commonly in some portion of the tube. Tubal pregnancies are classified according to their location. A very small number occur in the interstitial portion, but the vast majority are found in the isthmus or ampulla. The location

of the pregnancy determines to some extent the subsequent clinical course; thus, tubal abortion is more likely to be the end result in ampullar pregnancy, but tubal rupture in interstitial and isthmal pregnancies. It is quite possible that many early extra-uterine gestations subside following death of the ovum and absorption of the products of conception and never give rise to any serious symptoms. Various ovarian pregnancies have been reported, but observers believe that they as well as abdominal pregnancies are more likely to occur as secondary implantations resulting from tubal abortion rather than as primary pregnancies arising in these locations. Recent gynecologic literature is abundant with reports of unusual and curious terminations of ectopic pregnancy; however, it is beyond the scope of this paper to point out or to discuss these uncommon individual cases.

Fertilization of the ovum is believed to take place in the tube; therefore, for a short time at least, all pregnancies are tubal. It is not well understood why some of these fertilized ova should become implanted in the tube, and this presents a problem of considerable speculation. As a rule, any condition which will delay or hinder the transportation of the fertilized ovum through the tube may be responsible for implantation in an abnormal location. Because of the residual alterations in tubal architecture associated with gonorrheal salpingitis, nonspecific salpingitis and post-abortual infections, it is commonly believed that these conditions predispose to the development of extra-uterine pregnancy. Other factors, such as adhesions resulting from abdominal operations, tubal endometriosis, congenital anomalies and tumors of the uterus, may play a less important rôle. Ectopic pregnancy may follow an attempt to determine tubal patency by the injection of gas or radiopaque substances in sterility studies. The insufflation may restore tubal patency to such an extent that spermatozoa may gain entrance to the tube, and yet the fertilized ovum may be trapped in some blind pocket, or the restored ostium may be too small to permit its passage into the uterine cavity. In many cases of extra-uterine pregnancy the cause cannot be clearly determined, and it may be that, in these, other unknown predisposing factors are operating. It has been repeatedly shown that patients who have had one ectopic pregnancy run some risk of another in a succeeding pregnancy.

The pathologic picture in ectopic gestation depends upon the location and duration of the pregnancy. Because of the imperfectly formed decidua, the tube lacks a protective mechanism against the invasion of the trophoblast. Due to the effect of this unopposed invasive action, the

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trophoblast penetrates deeply surrounding structures and eventually perforates the peritoneum. The erosion of vessels results in intraperitoneal hemorrhage, or, if the perforation occurs between the folds of the broad ligament, the formation of an intraligamentous hematoma. Tubal rupture is the probable fate of implantations occurring in the isthmus and interstitial portions of the tube. On the other hand, particularly in ampullar pregnancies, rupture through the pseudocapsularis may occur, allowing the products of conception to be expelled into the tube and eventually into the peritoneal cavity. This process is known as tubal abortion. Because of the greater distensibility of the ampullar portion of the tube, it is possible for the pregnancy to continue longer in this location before tubal abortion or rupture eventuates. In rare instances the fetus may die and remain for a long time in a calcified or mummified condition without any unusual symptoms. Rarely the fetus may survive and the gestation proceed to term.

In the presence of an extra-uterine pregnancy, the uterus undergoes slight enlargement and the endometrium becomes converted into the decidua characteristic of an intra-uterine pregnancy. The decidua remains intact until the death of the embryo, when it is discharged either in fragments with more or less bleeding or brownish bloody discharge or sometimes as an intact decidual cast of the uterine cavity.

In no other field of gynecology is it so important to elicit a careful, detailed and accurate history of the menstrual function, since a missed menstrual period is the most constant typical feature in the clinical course of an ectopic pregnancy. In the usual case the menstrual period fails to occur at the expected time, and after a delay of from seven to fourteen days vaginal bleeding or spotting occurs. It is unusual for more than one menstrual period to be skipped before the onset of suggestive symptoms. When two or more periods have been missed before bleeding occurs, the condition is more likely to be a threatened abortion than an ectopic pregnancy. Some patients present a history of a period of relative infertility prior to the occurrence of an ectopic pregnancy.

The external bleeding in ectopic pregnancy is of uterine origin, and is due to the disintegration of the decidua following the death of the embryo. This dark brownish discharge is usually small in amount, and may contain shreds of decidual tissue, or occasionally a complete decidual cast of the uterine cavity. The expulsion of such a cast, should suggest ectopic pregnancy when considered in conjunction with the history and other significant symptoms and findings. Fol-

lowing the expulsion of a cast in toto, or in fragments, it is possible to curette the uterus and not obtain decidual tissue, and as a result, the operator may wrongly conclude that the patient had a complete abortion of an intra-uterine pregnancy. In cases of suspected ectopic pregnancy the tissue which is passed from the uterus spontaneously or obtained by curettage should be examined grossly and microscopically for evidence of fetal or placental tissue.

Internal hemorrhage associated with ectopic pregnancy may be the result of a vessel torn at the time of tubal rupture. In tubal abortions repeated small intra-abdominal hemorrhages may occur over a period of days or even weeks. In the former case a large amount of blood accumulates in the peritoneal cavity in a rather short period and the patient presents the typical picture of acute intra-abdominal hemorrhage with its attendant symptoms of shock and collapse. In the latter case, in which repeated small hemorrhages occur, the blood usually accumulates in the cul-de-sac in a semi-clotted form and presents a doughy bulging tender mass posterior to the body of the uterus. This mass may be readily palpated by vaginal or rectovaginal examination, and occasionally the bulging of the distended cul-de-sac may be visible on speculum examination. It is extremely important to know whether the cul-de-sac mass represents an exudate from an inflammatory process, or blood from an intra-abdominal hemorrhage. In cases where the history is atypical or confusing it is advisable to make this differentiation by puncturing the cul-de-sac with a large bore needle and aspirating its contents. Some operators prefer to open the cul-de-sac by posterior colpotomy so that the adnexa can be visualized, as well as available for direct palpation. These procedures obviously are not essential for making the diagnosis of every case of ectopic pregnancy, and should be reserved as additional diagnostic aids in those instances where the findings are inconclusive. There is no great danger with the use of either cul-de-sac puncture or colpotomy. When posterior colpotomy is employed the incision should be closed without drainage unless pus rather than blood is encountered. The presence of old blood in the cul-de-sac confirms the diagnosis of intra-abdominal hemorrhage.

Several types of pain may occur in extra-uterine pregnancy. The colicky pains of tubal abortion may closely simulate severe menstrual cramps. It is thought that these intermittent crampy pains are a result of the tubal efforts to expel the products of conception. The pains usually continue until the pregnancy is extruded from the fimbriated end of the tube. The pain associated with tubal rup-

ture usually has a sudden and dramatic onset. It is usually sharp and tearing in character and may be severe enough to double up the patient, or to cause her to faint. In some instances a feeling of faintness or dizziness may precede the acute abdominal pain. In both tubal abortion and rupture the accumulation of blood in the abdomen produces a lower abdominal tenderness and often a moderate rigidity and distention. As the blood accumulates in the abdominal cavity and cul-de-sac, the pain may be referred to the shoulder or to the rectum, and may be aggravated by deep breathing or defecation. The slightly enlarged uterus is very tender and may be difficult to outline because of the presence of hemorrhage or because of rigidity of the abdomen. The patient experiences marked tenderness when the cervix is moved. A tender boggy unilateral adnexal mass, associated with abdominal pain and vaginal bleeding, is highly suggestive of ectopic pregnancy. Massive intraperitoneal hemorrhage following tubal rupture produces a profound shock. It should be kept in mind that patients seldom expire from the hemorrhage alone. As shock progresses the skin and mucous membrane become pale; the pulse becomes rapid and thready, and the blood pressure falls to a very low level. The body and extremities may be cool and moist. The red blood cell count and hemoglobin become markedly lowered. The white cell count is usually elevated, and there may or may not be an elevation of temperature.

The Friedman test is of limited value in the diagnosis of ectopic pregnancy. In the presence of a unilateral adnexal mass and a history suggestive of ectopic pregnancy the Friedman test may shed considerable light on the nature of the lesion. However, a negative Friedman test does not rule out ectopic pregnancy; neither does a positive Friedman test help differentiate an ectopic from an intra-uterine pregnancy. The Friedman test usually remains positive as long as actively growing chorionic tissue is present and in contact with the patient's circulation.

Other findings may be of some aid in the diagnosis of extra-uterine pregnancy. Cullen's sign, or discoloration about the umbilicus, is due to the presence of blood in the peritoneal cavity. However, this sign is not commonly seen and even when present is not necessarily diagnostic, since it may be present in any condition associated with massive intra-abdominal hemorrhage.

In cases of neglected or mismanaged ectopic pregnancies it is not uncommon for a hematocele to become secondarily infected. Although the source of this infection is in some cases the intes-

tinal tract, usually it follows some type of intra-uterine manipulation. As suppuration occurs the physical findings and clinical picture closely resemble tubo-ovarian abscess, parametritis or infected ovarian cyst. Suppuration of a pelvic hematocele is a serious complication of ectopic pregnancy and is attended by a very high mortality rate. In these cases abdominal drainage is exceedingly dangerous, while colpotomy and vaginal drainage are the treatment of choice.

Ectopic gestation is often confused with some other type of pregnancy condition such as a threatened or incomplete abortion. Threatened abortions occur more commonly during the third and second months of pregnancy, while ectopic gestations are seen chiefly in the first month. In a threatened abortion the pain usually follows the vaginal bleeding, is localized in the midline, and closely simulates menstrual cramps. The partial dilation of the cervix, the history of profuse vaginal bleeding or the passing of large clots and the absence of adnexal pathology should differentiate an incomplete abortion from an extra-uterine pregnancy. When a differentiation cannot be made with certainty it may be necessary to curette the uterine cavity. The demonstration of fetal tissue in the curettings confirms the diagnosis of uterine abortion.

Pelvic inflammatory disease may present symptoms of irregular vaginal bleeding and pain which confuse the diagnosis. A history of gonorrheal infection, recurrent attacks of pelvic distress, bilateral masses, and a marked febrile reaction following pelvic examination will usually suggest the correct diagnosis. In the presence of a unilateral mass, a history suggestive of gonorrheal infection, and a marked febrile response to pelvic examination, one should suspect a tubo-ovarian abscess.

An ovarian cyst may become twisted on its pedicle and produce sudden and continuous pain, but there is no history of a missed menstrual period, and there are no signs of intraperitoneal hemorrhage.

Rupture of an ovarian follicle at the time of ovulation, while not often associated with external bleeding, may be accompanied by sufficient intra-abdominal hemorrhage to cause pain. This condition, known as mittelschmerz, occurs about twelve to fourteen days after the onset of the menstrual period. The symptoms are usually mild in character and disappear after twelve to twenty-four hours. Suggestive pelvic findings are absent, and the Friedman test is negative.

Unruptured tubal pregnancies are usually found accidentally. In most cases the abdomen is opened with a preoperative diagnosis of acute appendici-

tis, and the true condition is not discovered until the pelvic organs are examined. Undoubtedly many more tubal pregnancies could be diagnosed before rupture or abortion if the physician were ectopic conscious and if proper attention were given to the menstrual history as well as careful evaluation of the symptoms and pelvic findings.

The management of ectopic pregnancy often involves more than the simple surgical problem of control of hemorrhage. Not infrequently intra-abdominal hemorrhage may be so massive, and shock so profound, that urgent medical measures directed toward the replacement of blood loss and the supportive treatment of shock are decisive life-saving procedures. These two principles, the control of bleeding and the treatment of hemorrhage and shock, are fundamental in the modern management of ectopic pregnancy. Extreme profound shock from hemorrhage is a definite contraindication to any immediate or hasty operative procedure. The administration of an anesthetic in addition to the unavoidable trauma of surgery may cause a fatal outcome in a patient who otherwise would have a reasonable chance for survival if surgery were postponed until shock had been adequately treated.

The patient presenting an unruptured tubal pregnancy should be operated upon as soon as the diagnosis is made. It is usually necessary to remove only the involved tube, but in some cases bilateral salpingectomy may be advisable. If the patient presents signs of moderate intra-peritoneal bleeding, it is always wise to have a suitable donor available so that transfusion may be given during or immediately following the operation if necessary. It is often helpful to start intravenous fluids at the beginning of the operation. There is no objection to the use of autotransfusion when the intra-abdominal blood is of recent origin and uninfected. The fresh blood is recovered from the abdomen, citrated and strained through several layers of sterile gauze and returned to the patient's circulation by intravenous injection. By this method it is possible to restore a certain portion of the patient's blood to the circulation, and to combat the immediate effects of hemorrhage and shock. In regard to the postoperative use of transfusion it is better to err on the safe side, keeping in mind the fact that the anemic patient has a lowered resistance to infection.

Patients with ectopic pregnancy should not be subjected to unnecessary surgical procedures. The operation should be performed as rapidly as possible, the bleeding point ligated, the diseased tube removed and the abdomen closed without drainage. Many operators remove the large clots but

leave the small pieces of blood and fibrinous deposits undisturbed since these are usually absorbed without untoward reaction. The rather common practice of combining other procedures such as uterine suspension, appendectomy or gallbladder surgery with the treatment of ectopic pregnancy is to be condemned because of the marked increase in mortality attending this extension of the surgical attack.

1208 Bankers Trust Building

Discussion

Dr. R. M. Collins, Council Bluffs: In discussing Dr. Brown's excellent review of ectopic pregnancy, I prefer merely to emphasize two points. The first is the pelvic finding already referred to by Dr. Brown, namely, the bulging cul-de-sac. This, in my opinion, is the most constant and valuable finding in making a diagnosis. This may be represented by a small, doughy, tender mass lying just behind the cervix and is found when there has been only a small amount of hemorrhage, or the cervix may be pushed up high beneath the symphysis pubis, in massive hemorrhage. This pelvic finding may be found in three common gynecologic disorders, namely, ruptured ectopic pregnancy, pelvic abscess and ovarian cyst. To differentiate positively between the three, the cul-de-sac puncture is a safe, simple and reliable method of making a positive diagnosis. The technic is simple. A large bore needle is introduced into the mass, immediately behind the posterior lip of the cervix; suction is made using a ten or twenty cubic centimeter syringe. If the aspirated material is pus, the pelvic abscess may be then opened and drained. If clear fluid is obtained, a cyst is present and proper treatment may be instituted. Recovery of blood indicates ectopic pregnancy and immediate laparotomy is imperative. It must be remembered that in aspirating blood, small clots may be encountered which clog the needle. When this occurs, withdrawal of the needle and blowing it out on a clean sponge will reveal the clot and usually a small amount of fluid blood, which is enough evidence to make a positive diagnosis.

The second point is the value of autotransfusion, which is often a life-saving procedure. The blood, free in the pelvic cavity, is scooped out with any small receptacle, strained, citrated and given to the patient intravenously as any transfusion would be. Special care must be given to the straining because small clots are often present. Autotransfusion provides a means of obtaining compatible blood quickly, which may determine the ultimate outcome in desperate cases. I have never seen anything but benefit result from its use.

Dr. R. F. MacDougal, Cedar Rapids: Dr. Brown has very effectively but briefly covered the high points on this subject.

I should like to mention the work of Sampson and Smith, published in 1914, covering a large series of cases. They found that only 33 per cent of patients

who had an ectopic pregnancy became pregnant again, and of this group 15 per cent developed another ectopic pregnancy. On this basis, they feel that if the patient has living children, removal of the remaining tube may be advisable. Graves in 1921 concurred in this belief and suggested that the value of the remaining tube must be carefully weighed before allowing it to remain. If the patient is in good condition it is important to remove the tube by cornual resection rather than simple excision, because of the danger of subsequent ectopic gestation in the remaining cornua.

In obviously infected cases found at laparotomy, a posterior colpotomy should be done with the insertion of a T tube and drainage obtained through the cul-de-sac, thus avoiding drainage through the abdominal wall.

Anspach has reported a fatal case of septicemia following autotransfusion in a patient who had an unrecognized pelvic infection. Both Anspach and Titus favor transfusion from donors rather than the patient, unless such donors are not available and autotransfusion must be resorted to as a life-saving procedure. Most gynecologists recommend the liberal use of morphine in keeping the patients quiet, and postpone surgery until suitable donors are available. As a rule, fewer patients are lost by this method. This method is widely used in the management of ectopic pregnancy and gives good results in the majority of cases.

THE DIAGNOSIS AND TREATMENT OF APPENDICITIS*

GEORGE M. CRABB, M.D., Mason City

Seven years ago I presented a paper before this society on the subject of "Appendicitis and Its Increasing Mortality." In a review of the literature at that time, it was very evident that many writers were of the opinion that appendicitis was responsible for more deaths each succeeding year. The life insurance companies were very positive in their statements that more persons were dying each year as a result of the disease. There was a unanimity of opinion of all writers that the reasons for the high death rate were the errors in diagnosis, the frequent use of cathartics, and the delay in getting the patient to the surgeon so that the offending member could be removed. The remedy proposed was education of the public, and early diagnosis followed by immediate operation. I reviewed our own cases at that time and found the death rate for the acute cases was 4.1 per cent and for all cases 3.1 per cent. This mortality rate was in line with that reported by other hospitals treating private cases, and much lower than in

the large charity hospitals where patients did not get early and adequate care. At the conclusion of my paper I stated that I believed the mortality rate for appendicitis could be reduced one-half if a proper educational program could be carried out; the program to reach the doctors and the laymen alike; the burden of the message to all groups to be the seriousness of abdominal pain, the danger of cathartics, and the necessity of getting competent medical advice at once.

When the chairman of this section asked me to present another paper on the subject of appendicitis, I was immediately interested for I knew it would give me a chance to go through the current literature to see if any progress had been made in the treatment of this common ailment that has been responsible for so many deaths among the young people of our land; for you well know that the greatest toll is among the youth.

Turning now to a discussion of the differential diagnosis of appendicitis, it seems to me that in a large percentage of cases the diagnosis is simple if a doctor will sit down and take a careful history. There are very few abdominal conditions which present such a clear cut clinical picture as an attack of acute appendicitis; and if we are alert the correct diagnosis should be made. Any abdominal pain that persists for more than two hours should be investigated. The onset is usually abrupt in that it appears in a person who is well and active; abdominal distress coming on at any time of the day without relation to meals; and it may be or may not be followed by nausea and vomiting. The distress is continuous and later, within three to six hours, is localized in the right lower quadrant, where the pain becomes cramplike or in some cases, continuous. The leukocyte count will be increased above 10,000 with a corresponding increase in the percentage of polymorphonuclear leukocytes. The temperature is usually elevated but scarcely ever over 102 degrees, except in very young children. After the first six hours the temperature rises gradually and the leukocyte count continues to rise unless the attack subsides. Vomiting will occur if fluids are taken and the acute process continues, although it is surprising how many cases will progress to a gangrenous appendix without vomiting.

I would not attempt to enumerate all the conditions which have been listed in the differential diagnosis of this common disease. One paper I read had a list of eighty different diseases which could be confused with appendicitis. Since the influenza epidemic of twenty years ago the term "intestinal flu" has been the stumbling block, and many serious abdominal conditions are overlooked and valuable time wasted because of such a diag-

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nosis. People have been prone to consider lightly attacks of abdominal pain, calling it "intestinal flu", ptomaine poisoning, "stomach ache", administering home remedies until an acute appendix has ruptured and peritonitis has resulted. Acute salpingitis in the female is often confused with appendicitis. Here the history alone will give the clue which should decide the issue. Usually a higher temperature and very much higher leukocyte count will make the diagnosis plain. Hemorrhages from the ovaries during menstruation in the adolescent girl have many times been confused with appendicitis and have been responsible for many unnecessary operations. Here again a careful history and negative findings necessary to make a diagnosis of appendicitis should decide and point out the correct diagnosis. In the young child one should not forget the similarity in the onset of acute lobar pneumonia and acute appendicitis. Here is one condition which will tax the diagnostic ability of all of us, because the symptom complex may be similar since the abdominal symptoms of lobar pneumonia are very prominent. To this short list of conditions which may be confused with appendicitis I would add several without taking time to point out the symptoms of each. Mesenteric adenitis, regional ileitis, Meckel's diverticulitis, pyelitis, and ureteral stones may be included in a more complete list, but each has its symptom complex which would not fit into the picture of an acute attack of appendicitis.

TREATMENT

Once the diagnosis is made operation is the only method of treatment. The sooner the diseased appendix is removed the better, without regard to the stage in which the patient comes to be treated. We have seen a few patients treated conservatively who recovered and came for operation later, but I believe now that these patients would have responded equally well with our present methods of treatment. The McBurney or gridiron incision has been used in practically all our cases and very seldom has great difficulty been experienced. The added safety to the remainder of the peritoneal cavity is of the greatest importance. The incision can be enlarged if necessary. Postoperative hernias are extremely rare. The appendix should always be removed, and one should guard against contamination in the perforated cases.

I have for many years simply ligated the stump, without purse string invagination, in those cases where the inflammatory process extended to the cecum, and during the past year we have adopted this method in all cases. The base of the appendix is clamped with an artery forceps, then tied

with a single strand No. 2 chromic gut; the stump mucosa is treated with pure phenol applied with a small hemostat. No alcohol is used. The excess of phenol is removed by squeezing the stump beyond the ligature with a piece of dry gauze with the same hemostat used to apply the phenol. It has been our observation that patients so treated have less postoperative disturbance than those where the stump was invaginated into the cecum. Is it not possible that the invagination sutures interfere with the normal peristalsis of the cecum and ascending colon? Drainage is used only in those cases where there is soiling by perforation. If there is evidence that the peritonitis has extended to the pelvis, the drain should extend to the pelvis and remain there for six to ten days depending on the progress made in each individual case.

One writer recently stated that there has been little, if any, improvement in the results of treatment in the last twenty-five years. I do not agree with him, because fewer patients are dying from appendicitis today than there were ten or twenty years ago. I believe that the greatest improvement in the treatment of appendicitis has been our ability to produce physiologic rest of the gastrointestinal tract after the operation has been completed. Such physiologic rest of the gastrointestinal tract is obtained by limiting the oral intake and not disturbing the large bowel by proctoclysis. If we limit oral intake, we must maintain water and chemical balance by the administration of intravenous solutions of glucose and saline. Biochemical examination should be made frequently to show us that the proper balance is present. If abdominal distention and vomiting occur, the use of a Levine tube through the nose is a great help in relieving the distention, thus keeping the stomach and duodenum empty. Patients tolerate the tube for several days at a time and will ask to have it reinserted, when it is removed, because it gives so much relief. Enemas and proctoclysis should never be used in patients with peritonitis, because they incite increased peristalsis and throw more strain on the site of the appendectomy. This means of producing physiologic rest of the gastro-intestinal tract by the administration of vital fluids and chemicals and the use of the nasal tube for emptying the stomach and duodenum have contributed more to improving the mortality statistics than any other factor.

Those patients who have been desperately sick with general peritonitis often develop complicating abscesses just when we think they are on the road to recovery. Pelvic abscesses are common and should be watched for very carefully. In the female patient a vaginal examination will readily

reveal a cul-de-sac abscess which can be opened through the vagina. In the male patient a rectal examination will tell the examiner at once when a pelvic abscess is present, and it should be opened through the wall of the rectum. Either one of these procedures is much more rational than attempting to open down through the original incision or making a new one in the left lower quadrant. One of the first signs of a pelvic abscess will be mucus in the stools. At times this will be profuse and blood stained, and this is pathognomonic of an abscess in the rectovesical pouch. Many of the abscesses will rupture spontaneously, but we should not wait for this. We should make the diagnosis and drain, either through the vagina or transrectally. The recovery is rapid and spectacular.

There are many other complications which tax the skill of all of us. The one most serious is the occasional mesenteric thrombosis, and we cannot foresee or even guess when this fatal complication will occur. I do believe that gentle handling of the intestines and mesentery about the base of the cecum will do much to prevent such a complication. One should never use a needle with suture to stop troublesome hemorrhage from mesenteric vessels. The patient should remain in bed seven to ten days in the ordinary undrained case. The practice of getting a patient out of bed in three to five days is unscientific even though it may be spectacular. Eight to ten days is a minimum time for the wound in the intestine as well as the abdominal wall to heal. A few extra days may prevent trouble in the future. Hernias do develop and will return to embarrass us. In the drainage cases, of course, the stay in bed should be longer, depending on the conditions present.

After a hasty review of the literature and our own cases I can positively say that progress has been made. Ten years ago 25,000 patients died each year in the United States and 500 in the state of Iowa. In 1938 there were only 16,000 fatal cases in the United States, and only 299 in Iowa. In our hospital we have operated 335 acute cases and 74 chronic cases with six deaths, a mortality of 1.7 per cent for the acute cases and a mortality of 1.4 per cent when the chronic cases are included. This percentage is less than one-half the figure in my report seven years ago. These statistics agree with those given in other hospitals. The Horsleys of Richmond, Virginia, recently reported a much lower percentage, .8 per cent. This is indeed a remarkable record and one for which we should all strive. I am thoroughly convinced that we have saved many lives by an improved operative technic, by physiologic rest of the

gastro-intestinal tract through the giving of intravenous fluids, by the use of the Levine tube to prevent distention, and by the prompt and adequate treatment of the complications.

Discussion

Dr. Harold L. Brereton, Emmetsburg: Dr. Crabb's paper should be read by all doctors in Iowa. Because of clarity of expression throughout and concise instruction as to treatment of this treacherous malady in its early stages, this paper should be brought to the attention of all the profession in Iowa and especially of those of us who are general practitioners.

It was my good fortune to hear Dr. Horsley present the paper, to which Dr. Crabb has referred, at the American Medical Association meeting in Saint Louis last May. I marveled at the results. The discussion which followed plainly revealed that belief in immediate operation on every case of appendicitis, no matter what the stage, is not universally held. In the hands of such men as the Horsleys in Virginia and Dr. Crabb here in Iowa, the mortality rate has been lowered by immediate operation upon all patients, no matter what the stage; but for the rank and file of us who are doing emergency surgery, the following of such teaching would, in my opinion, be wrong. If all our patients with inflamed appendices came to us in the first few hours of the attack, such advice would be right, of course. However, a large share of them are first seen by the doctor after they have ceased to be cases of appendicitis, but instead are the complications of appendicitis, appendiceal abscess, diffuse peritonitis, subphrenic abscess, ileus due to a mechanical cause or of the paralytic type, and acute suppurative parotitis often are present.

Patients with appendicitis should be individualized. If one is presented with a patient who has passed beyond the stage of gangrenous involvement of the appendix or possibly local abscess formation, he should step very carefully in the moves which he makes. Certainly no harm can be done in instituting physiologic rest at once, the replacement of salts, fluids and food in the dehydrated and toxic patient, and the removal of poisonous substances from the stomach and duodenum, while carefully weighing all symptoms and findings, might be pursued for eight to twenty-four hours before instituting operative procedure.

Dr. Crabb may say that I have the cart before the horse, but his cart and my cart are going in the same direction I trust. In all this excellent paper has presented relative to physiologic rest, I agree. Dr. Bertha Van Hoosen of Chicago, some years ago taught the value of small and regularly repeated doses of morphine, both before and after operation. Dr. Alton Ochsner of New Orleans, later propounded the proposition of withholding everything, even water, while the stomach and intestines were splinted by morphine. He also showed that the effect of morphine used in the right way does not harm the viscera. Liberation of gas and the removal of noxious substances from the stomach postoperatively

were practiced by Drs. Charles and William Mayo long ago, when the stomach tube took precedence over the stethoscope. More recently the Wangenstein suction apparatus applied to the nasal tube has augmented the stomach tube by its ability to go farther down the gastro-intestinal tract. The intravenous injection of salts and glucose dissolved in sterile distilled water has followed Murphy's original idea of rectal absorption with more exact application and certainty of effect. The old fashioned turpentine stupe has great value. When applied warm and voluminously to the vasa-lined abdomen, and repeated frequently enough to keep it warm, it will do much to localize peritoneal infection before operation and to remove distention and promote normal bowel function after the operation. I ask why these life-saving measures should not be instituted before operation as well as after, especially when the surgeon is getting his bearings and is deciding what is best to do.

I think it highly important in treating these patients that careful instruction be given the nurses so that intelligent attention will be given the patient. One frequently sees water being given by mouth when suction is being applied to the nasal tube. To my mind this defeats the purpose of the physiologic rest and at certain times might cause disaster by exciting peristalsis. In this category should be placed pituitrin and other excitors of peristalsis. They now have little place in this treatment, I believe. Flatus will be expelled and normal peristalsis will be initiated if one stands by and carefully protects his patient from rectal tubes and enema cans. I commend Dr. Crabb for his attitude regarding proctocolysis in peritonitis. I should go farther and say it should not be used even following simple appendectomy.

CLINICAL NOTES FROM THE COLLEGE OF MEDICINE

THE CLINICAL USE OF ADRENAL CORTICAL HORMONE

JAMES A. GREENE, M.D., Iowa City

Department of Internal Medicine
State University of Iowa, College of Medicine
Iowa City, Iowa

Adrenal cortical extract has been advocated for a variety of syndromes because acute or chronic cortical insufficiency has been thought to be present. The diagnosis of adrenal cortical insufficiency is difficult to prove. In Addison's disease, which is one syndrome generally conceded to be due to such a deficiency, specific diagnostic methods have been established. In the other syndromes, however, there are no such methods available. The efficacy of clinical extract therapy must

be ascertained, therefore, by the results obtained in a large number of cases. It is likely to be difficult to judge these results because the treatment of Addison's disease has not been entirely satisfactory.

In a discussion of adrenal extract therapy it is necessary to review the known significant metabolic alterations which occur in Addison's disease. Most investigators agree that there is a disturbance of sodium, potassium and water metabolism. There is increasing doubt that altered carbohydrate metabolism produces any significant manifestations in man. There may be hypoglycemia during a crisis, and, therefore, dextrose is administered routinely. The importance of disturbance in water metabolism in the production of symptoms is not known. There is a storage of water simultaneous with that of sodium during the correction of sodium depletion, and a decrease in plasma volume is observed in a crisis. The rôles of sodium and of potassium in the production of symptoms are not understood, but it is generally agreed that the alteration in potassium metabolism is the more important factor. The patient is unable to retain sodium in a normal manner and, therefore, a sodium depletion develops. Balance studies show that with an average sodium and potassium intake there is a loss of sodium from the body, but with a high sodium and low potassium intake there is a storage of sodium until the depletion is corrected. This sodium depletion may be extreme in an untreated patient and may require three to five weeks of storing sodium to correct it. After correction a patient may remain in a negative sodium balance for thirty to fifty days or longer before extreme depletion develops. There have been only two known manifestations which may be attributed to sodium depletion. One is the increased sensitivity to added potassium, and the other is orthostatic hypotension. The latter was observed in one of our cases¹ and it was corrected with the storage of sodium. Simultaneous with the storage or loss of sodium there is a storage or loss of water and an increase or decrease in body weight. This increase may be as much as fifteen to twenty pounds in twenty to thirty days. As sodium depletion is corrected the body weight reaches a plateau. Changes in body weight, therefore, may indicate whether or not sodium depletion is being corrected or is developing.

The only manifestation definitely attributed to alteration of potassium metabolism is the production of a crisis. There is elevation of serum potassium during a crisis and a crisis can be produced by the administration of adequate potassium. The storage of potassium does not account for the production of the manifestation because there may be

a storage of potassium simultaneously with that of sodium without a crisis developing. Elevation of serum potassium is also a doubtful causative factor. We have observed elevations of serum potassium in patients without Addison's disease without there being any demonstrable manifestations. The amount of potassium necessary to produce a crisis appears to depend upon the presence and degree of sodium depletion. A smaller amount will produce a crisis if sodium depletion is extreme than if it has been corrected. The time required for potassium to produce a crisis also varies. Large amounts will produce one sooner than will small amounts. It usually requires from two to five days or longer after addition of extra potassium for the manifestations of a crisis to appear. If the extra potassium is administered for three days only, a crisis may not develop until two or three days after the extra potassium has been discontinued.

The action of adrenal cortical extract is only partially known. It aids the body in retaining sodium if the sodium intake is low, but does not increase the rate of storage if the intake is high. It has been stated recently by Hartman, Spoor, and Lewis² that the sodium retention factor can be separated from the factor which prolongs the lives of adrenalectomized animals. The elevated serum potassium which occurs in a crisis is decreased by the hormone, and Ferrebee, et al.,³ have pointed out that large doses of hormone will depress the serum potassium below normal levels. Accompanying the abnormally low levels are malaise, weakness and gastro-enteric symptoms. The effect upon the arterial pressures is variable. They are increased during a crisis if circulatory collapse occurs, and chronic hypotension is usually improved, but it may persist. The effect upon asthenia is also variable. That which may accompany a crisis is relieved immediately but the strength in the chronic case usually does not return to normal levels. The action of desoxycorticosterone appears to differ slightly from that of the extract and there is a growing belief that it does not give complete hormone replacement. The occurrence of edema in many cases treated with this preparation suggests that it may have a greater action upon sodium metabolism. The arterial pressures are elevated more consistently and hypertension may be produced.

The treatment of Addison's disease differs somewhat in the various clinics. The differences are due to variations in the amounts of sodium, potassium and cortical hormone administered. In certain clinics there is an attempt to correct the electrolyte metabolism by a high sodium and low potassium intake, and small daily doses of hor-

none are prescribed. Others rely upon larger doses of hormone to correct the altered metabolism and permit an average sodium and potassium intake. In some clinics sufficient hormone is administered to depress the serum potassium level and potassium is administered to counteract this depression. The sodium intake is not altered. The treatment in other clinics varies only in minor points from the above methods. The hormone is administered as cortical extract or as desoxycorticosterone. The former may be given orally in tablet form or injected subcutaneously daily. The latter may be injected daily or it may be implanted as pellets. Sudden death continues to occur in patients treated by each method. It is obvious, therefore, that the treatment of Addison's disease has not been solved.

It is generally accepted that the treatment of Addisonian crisis is the intravenous administration of a 0.9 per cent solution of sodium chloride and of sodium citrate and a five per cent solution of dextrose. Usually about one liter of such a solution is sufficient. In addition cortical hormone should be administered. A crisis is an emergency and should be treated promptly. It is important, therefore, to recognize its manifestations. The more common ones are extreme asthenia and circulatory collapse. However, mental confusion, restlessness and convulsions, or nausea, vomiting, diarrhea and abdominal pain, or only excruciating pain in the loin, may be the predominating manifestations. Asthenia and circulatory collapse may not be present.

The similarity of certain syndromes to Addisonian crisis has suggested the possibility of adrenal cortical hormone therapy. It is necessary to assume that patients with such syndromes have either developed an acute insufficiency or they have had a chronic deficiency which does not permit the patient to withstand mechanical or toxic trauma. Such assumptions cannot be confirmed or disproved until specific diagnostic methods are available. The potassium tolerance curve is a method which was proposed⁴ for such a purpose. We⁵ have obtained curves in a variety of diseases, including Addison's disease, and found that it is not specific for adrenal cortical insufficiency in man. It was suggested by Zwemer and Scudder⁶ that acute cortical insufficiency occurred in surgical shock because they found a disturbance in potassium metabolism. Bisgard, McIntyre and Osheroff,⁷ on the other hand, were unable to demonstrate disturbance of potassium regulation in experimentally produced surgical shock in animals. Before it can be said with certainty that adrenal cortical insufficiency exists in certain syndromes it will be necessary to control all possible

causative factors. The loss of blood, degree of dehydration and of sodium depletion, extent and severity of toxic or mechanical trauma, and the condition of the nutrition and of the cardiovascular system are a few causative factors which should be taken into consideration.

The explanation for the use of cortical hormone therapy in certain syndromes appears very poor in the light of our knowledge of Addison's disease. It is readily admitted that the rationale for the use of an endocrine preparation may not coincide with its effectiveness. Amelioration of certain syndromes have been definitely established clinically but the cause of the results are not yet understood. It has been thought previously that administration of cortical hormone would not produce any damage although it might not be beneficial. The report of Ferrebee, et al.³ suggests that deleterious effects may be produced. It behooves us, therefore, not to use such a hormone promiscuously.

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Discussion

Dr. H. M. Korn: I can only reiterate what I said earlier this year; namely, that one of the complications of pneumonia which we fear most is peripheral circulatory failure, and, as Dr. Greene has indicated, it has been suspected that adrenal insufficiency may play a part in producing this peripheral vasomotor failure and arterial hypotension. Therefore, it has been suggested that adrenal cortical preparations might well be used in such cases. How efficacious this treatment may be I do not know, for I have not yet had the opportunity to try it.

Dr. V. W. Petersen: From the clinical point of view, the factors which are responsible for surgical shock are blood loss, duration of operation, tissue trauma and physiologic changes incident to operation. We have done some work in connection with thoracoplasties because in this particular operation each of the four factors probably is as constant as it is in any surgical procedure. Therefore, we have tried to determine just what effect the preoperative administration of cortical extract might have on

surgical shock. We have divided thoracoplasties into stages because removal of all seven ribs in one stage is too extensive a procedure. By dividing the operation and reducing the length of operating time, we do not often encounter surgical shock. Therefore, we have not been able to reach any definite conclusion except that we do see shock in spite of the fact that the extract has been administered. We feel that it has little effect on the prevention of shock. We still have to watch carefully for hemostasis, trauma, etc., and have not by any means answered the question by administering cortical extract. We have not gone so far as to do our thoracoplasties in one stage just because we have the cortical extract. On the other hand, from observation of a very few patients who have gone into shock in spite of the preoperative administration of cortical extract, we feel that it may be responsible for a more rapid recovery from shock when the usual proper treatment is instituted.

Dr. E. L. Besser: A number of investigators have suggested that adrenal cortical extracts or their synthetic preparations are of value in treating patients who undergo major surgical procedures. Particular attention has been centered on the possible rôle of adrenal cortical hormone in the prevention and treatment of surgical shock. One feature which is present in all instances of surgical shock is a decrease in the circulating blood volume, and it is accepted that adrenal cortical hormone is concerned with the maintenance of a normal blood volume. This fact suggested the possibility of preventing or treating shock by the administration of cortical hormone.

Several factors contribute to the production of surgical shock as it is seen in various operative procedures. Hemorrhage is probably the most important factor, and I do not know of any experimental or clinical evidence suggesting that cortical hormone increases resistance to the shock caused by hemorrhage. Neurogenic reflexes contribute to operative shock and there is no evidence that cortical hormone is of value in altering this phenomenon. Certain anesthetic agents, particularly ether, cause a decrease in circulating plasma volume. McCallister and Thorn found that in dogs this decrease could be prevented by large intravenous doses of adrenal cortical extract. This observation would seem to have a definite clinical application, and Ragan and his associates determined the plasma volume changes in patients upon whom urologic operations were performed under ether anesthesia. A decrease in plasma volume of from three to eight per cent was found to occur. A similar group was given desoxycorticosterone preoperatively and no decrease in plasma volume occurred. The theory that traumatized tissues liberate a toxin which causes generalized capillary changes and subsequently a decrease in circulating plasma volume is again receiving considerable support. Several authors have suggested that adrenal cortical hormone is of value in enabling the organism to adjust to the action of the so-called "toxin." This has not been adequately substan-

tiated, but Perla produced histamine shock in rats and found that all the untreated animals died, while in a similar group which was given desoxycorticosterone and saline, eighty-five per cent survived.

According to certain of the drug salesmen, cortical preparations are being used with great success throughout the country to prevent shock. However, only a few reports have as yet reached the literature. One such report was made by Reed, who gave cortical extract to fifty patients undergoing various gynecologic and general surgical procedures. His clinical impression was that these patients were definitely resistant to shock and in several instances in which shock had occurred, cortical extract was of great value in conjunction with intravenous fluids and transfusions. No studies of blood volume or blood loss were made. Perla has recently reported that Cortate, Schering's desoxycorticosterone, is of value in preventing shock. Patients were given cortate in five to ten milligram doses for several days before operation and were also given intravenous saline twice daily during this time. To quote directly from his paper, "twelve consecutive instances in patients with chronic diseases in whom such operative procedures were performed as resection of colon or stomach, thoracoplasty and the like. In all instances the patients were strikingly benefited, there was no objective evidence of shock, blood pressure was maintained or elevated from ten to thirty millimeters, the temperature in general returned to normal within twenty-four to forty-eight hours, post-operative exhaustion and toxemia were definitely lessened, complications did not occur and operative recovery appeared to the surgeons concerned, to be more rapid than in their preceding surgical experience with similar conditions in our hospital."

Forty-six patients on the general surgical service of this hospital have been given fifteen to thirty milligrams of cortate* during the twelve to sixteen hour period before operation. This series is not completed and conclusions must be drawn with definite reservations. It is presented at this time only because it is of some interest in the present discussion. Since certain operative procedures are more likely to cause shock than others it would seem advisable to divide the cases into groups on the basis of the operative procedure. The results are shown in the accompanying tables.

In Group I, hemorrhage was the primary factor contributing to the production of shock and it is to be noted that cortate seemed to be of little value in preventing shock in this group. Actual blood loss was determined by the hemoglobin content of the sponges and drapes, and shock occurred almost in direct proportion to the magnitude of the blood loss.

Group II included the extensive intra-abdominal operations in which hemorrhage was relatively small and it is in this group that one might expect cortate to be of value. None of the patients receiving cortate manifested shock. This series, however, is too small to form final conclusions. The abdominal-

I. OPERATIVE PROCEDURES IN WHICH THERE IS OFTEN A RELATIVELY LARGE BLOOD LOSS

Thoracoplasties	Total number	Radical Mastectomies	
		Cases manifesting shock during operation	Latent shock
Cases given cortate	18	7 or 38%	0
Control cases	17	6 or 35%	0

II. EXTENSIVE INTRA-ABDOMINAL OPERATIONS Gastric resections, colectomies, intestinal resections and anastomosis, repair of fecal fistulae

	Total number	Operative shock	Latent shock
Cases given cortate	16	0	0
Cases given cortical extract .	1	1	0

III. ABDOMINAL-PERINEAL RESECTIONS OF THE RECTUM

	Number	Abdominal part premonitory signs	Shock	Shock during perineal part
Cases given cortate	11	2 or 19%	1 or 9%	6 or 54%
Control cases	32	5 or 18%	2 or 6%	11 or 35%

	Number	Shock on return to ward		Latent shock	Died of shock
		Moderate	Severe		
Cases given cortate	11	28%	0	0	0
Control cases	32	24%	26%	15%	6%

perineal resections of the rectum were put in a separate group. These patients usually do well during the abdominal portion of the operation but frequently develop shock during the perineal portion. It is to be noted that cortate did not prevent the shock which occurs during the perineal excision. Neurogenic factors play a certain rôle in the fall of pressure occurring with excision of the rectum and it is unlikely that this could be prevented by cortate. It may be significant that not any of the patients receiving cortate were in severe shock when they returned to the ward. They manifested no latent shock and none died of shock.

Several authors have suggested that cortical hormone alone might not be capable of preventing shock but that it enabled shocked patients better to utilize the fluids and transfusions which were given. There is a group of eight patients reported from the New York hospitals in which severe shock occurred and there was only temporary response to intravenous fluids and transfusions. However, when cortical extract was given intravenously with fluids and blood, shock was soon alleviated and the patients remained in good condition. Heuer and Andrus produced shock in dogs by the intravenous injection of aqueous extract of the contents of the obstructed intestinal loop. Controlled dogs did not recover from the shock thus produced and intravenous saline or blood transfusion brought about only temporary improvement. However, when cortical extract was given with transfusion, the blood pressure returned to normal and the animals lived.

*Cortate has been furnished by Dr. Stragnell of the Schering Corporation.

We have had two cases which suggest that intravenous fluids and transfusions plus cortical extract were of value. One was a lobectomy in a small frail child who was a very poor risk. She was given cortate preoperatively but was in severe shock after the operation. However, she responded dramatically to a transfusion and five cubic centimeters of cortical extract intravenously. Another was an operative procedure on the common duct which lasted more than five hours. Shock developed and intravenous fluids and transfusion brought about only a transient response. Ten cubic centimeters of cortical extract were given with blood, her blood pressure returned to normal and she remained in good condition.

Dr. Greene mentioned the possibility of a state of hypo-adrenalism. It has been suggested that there is a low reserve of cortical hormone in certain patients who need surgical procedures. In this group are patients who are malnourished and asthenic, such as cases of ulcerative colitis, intestinal fistulae and malignancies. Patients of this type are likely to go into shock, but it has not been definitely proved that such a condition of low reserve of cortical hormone exists. If such a condition exists, it seems logical that the administration of cortical hormone would be of value. There is certain experimental evidence to support this belief. Swingle and his associates found that adrenalectomized dogs which were maintained in apparent good health by injections of cortical extract had very little resistance to any of the shock producing procedures, such as muscle trauma and intestinal manipulation. They suggested that these adrenalectomized animals lacked a reserve supply of cortical hormone and after a surgical shock had been produced, it was alleviated by large doses of cortical hormone.

There are certain theoretic reasons and some experimental evidence which suggest that adrenal cortical preparations are of value in combating some of the factors which tend to produce surgical shock. There is certain clinical evidence to support this view, but present clinical studies include only small numbers of cases, and conclusions concerning the value of these preparations must be made with definite reservations.

THE OFFICIAL ISSUE

This issue of the JOURNAL carries the Minutes of the Eighty-ninth Annual Session, the Transactions of the House of Delegates, and the roster of members of the Iowa State Medical Society in good standing as of June 25, 1940. Save this JOURNAL for future reference.

THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

SYPHILIS: THE ETERNAL ENIGMA

F. P. McNAMARA, M.D., Dubuque

The majority of syphilitic individuals with primary or secondary lesions are ambulatory patients and therefore are rarely seen in small, general hospitals. However, individuals with congenital or tertiary lesions are occasionally encountered, although as a rule syphilis may be unsuspected by the patient or the doctor until the hospital studies have been completed. Because tertiary lesions are often masked or simulate almost any other condition, it is necessary for every clinician to have what Stokes¹ has termed an "alert suspiciousness of mind in regard to the disease." The following brief abstracts of cases in which "alert suspiciousness of syphilis" was lacking or at least slowly developed, are cited to indicate the need for constantly keeping syphilis in mind and for more intensive clinical study in order to make a diagnosis rather than placing entire dependence upon laboratory studies.

CASE REPORTS

Case 1. A man forty-eight years of age was admitted to the hospital because of a tumor at the left sternoclavicular joint. Sarcoma was suspected and at operation a soft mass of material was removed. The pathologic report was gumma. A definite history of a primary lesion was then obtained and the serologic test was strongly positive. After treatment the patient remained well for ten years.

Case 2. A man sixty-six years of age was admitted to the hospital because of a chronic ulcer over the right temporal bone. It had been present for two months and was slowly increasing in size. The base of the ulcer was crusted and the pathologic report on the tissue was gumma. Two successive serologic tests taken after the operation were strongly positive. A definite history of infection twenty-six years before was then obtained.

Case 3. A man fifty-six years of age was admitted to the hospital because of persistent vomiting and some gastric distress. X-ray examination showed a deformity of the stomach thought to be due to carcinoma. After one year and because there was no notable change in the symptoms the x-ray examination was repeated and showed the stomach to be essentially the same as in the previous examination. The roentgenologist then suggested a serologic test and it proved to be

strongly positive. The clinician doubted the possibility of syphilis but on questioning, the patient described a primary lesion which he had had twenty-five years before and which had healed after he applied a salve recommended by a neighbor.

Case 4. A married woman twenty-eight years of age was referred to the hospital for x-ray examination of the gastro-intestinal tract because



Fig. 1.
Roentgenogram showing defects at the cardiac end of stomach (Case 4).

of stomach distress and a loss of thirty pounds in weight. At the first examination the roentgenologist reported as follows: "X-ray examination of the stomach and duodenum shows an unusual appearance at the cardiac end of the stomach along the greater curvature. The area is rigid, irregular in outline with several defects along the border. The appearance is highly suggestive of carcinoma. Pressure from the spleen might be the cause but is improbable. It is just barely possible that a foreign body is present. A malignant lesion, however, seems most likely. *Diagnosis:* Carcinoma of the cardiac end of the stomach (Fig. 1)." The patient was re-examined a month later and showed the same condition as in the previous examination. Later the referring physician ordered a serologic test which proved to be strongly positive. Under antisypilitic treatment the patient regained her lost weight and became free from gastric symptoms.

Case 5. The patient, a girl eight years of age, fell and bruised her knees. They became swollen and stiff. She was treated outside the hospital

for "rheumatism" with chloroform liniment for two months. She was then taken to another doctor who made a serologic test. It was strongly positive and after treatment the patient's knees returned to normal.

Case 6. A married woman forty-four years of age was admitted to the hospital on November 14, 1938, because of "swelling and slight tenderness over the dorsum of the right hand." She gave a history of having fallen on the ice in December, 1937 and again in January, 1938. As a result she had soreness but no swelling or discoloration of the hand. Five months later, while wringing some clothes, she noticed swelling and aching of the right hand. She consulted an osteopath and after an x-ray examination he made a diagnosis of arthritis and advised massage. He also gave injections into the hip but since the swelling of the hand became worse, the patient stopped treatment. She then consulted a physician who advised x-ray examination, but this was refused. About a month later she consulted another physician who in turn referred her to a consultant who had an x-ray examination made. The roentgenologist's report follows: "X-ray examination of the right hand shows considerable atrophy of the bones about the wrist and hand.



Fig. 2.
Roentgenogram showing changes in the right fourth metacarpal bone in Case 6.

The upper end of the shaft of the fourth metacarpal bone is irregular in outline with some periosteal proliferation of bone and bone absorption in the upper portion. An indefinite rarefied line is seen running across the upper end, most suggestive of an old fracture. An osteomyelitis should be considered, although no abscess or sequestri can be made out. (Fig. 2)." *Conclusions:* Periostitis of the right fourth metacarpal

bone; bone atrophy of the right hand; possible old fracture of the fourth metacarpal; and possible osteomyelitis of the fourth metacarpal. A plaster casing was applied in order to immobilize the hand and wrist. This was removed six weeks later and another x-ray examination showed areas of bone destruction in the shaft of the fourth metacarpal bone, a periosteal reaction and several small dense shadows suggestive of sequestri. Operation was considered advisable. At the operation softened bone was curetted and the pathologic report was chronic osteomyelitis without evidence of a specific etiology. A serologic test was then done and was strongly positive. No history indicating infection could be obtained. Under treatment the hand rapidly returned to normal.

Case 7. A man fifty-four years of age was admitted to the hospital because of swelling of the testicle. A preoperative diagnosis of a neoplasm was made and orchectomy performed the morning after admission. The pathologic report was multiple gummas of the testis. A postoperative serologic test was strongly positive and on questioning the patient admitted having had a primary lesion eight years previously.

Case 8. A single girl eighteen years of age was seen because of a sore on the lower lip. It had gradually developed and was not painful, but a diagnosis of an abscess was made and the lesion incised. No pus was obtained. When first seen at the hospital the lesion was dark bluish red, hard and painless. There was a large, painless, satellite bubo in the neck. The dark-field examination was positive and the serologic test was strongly positive. The only history indicating the source of infection was that of drinking from a common drinking glass in the factory where she was employed.

COMMENT

In retrospect one may wonder why syphilis was not suspected earlier in the above cases. Each of the lesions are well known, at least in cities where syphilis is more common than in the average Iowa community. Judging by our experience in this hospital probably syphilis is encountered in less than one-fifth of one per cent of all admissions to the general hospitals in this state. Assuming that this is true, it is obvious that the average physician will not encounter the above or similar lesions more than once or twice in a lifetime's practice. Nevertheless they should always be kept in mind in slowly developing, ill-defined or chronic lesions. Syphilis should more or less automatically be suspected in lesions of this type regardless of age, sex, social status or

whether the patient is "well known" to the physician or not. With the proper clinical approach and above all a complete, objective, physical examination other stigmata of the disease besides the one causing symptoms may be encountered. In other words the clinician should use clinical methods to make a diagnosis rather than lazily depend entirely upon laboratory methods. Every physician should realize the significance of the following paragraph taken from Stokes: "Alertness toward syphilis is effective only when it is chronic and consistent. The disease takes constant advantage of that type of diagnostician in any field whose search for it as a factor in his work is confined to occasional 'shake-ups' following a report that some colleague, more alert than himself, has checked up one of his cases and by identifying the unsuspecting syphilitic factor, and applying treatment, has scored a triumph. Such an experience yields only a portion of its teaching value if the losing side is merely inspired to add another element to its routine procedure as distinguished from its mental attitude; such, for example, as a Wassermann test on all patients showing edema of the nasal mucosa or bilateral hydrarthrosis, or what-not. Valuable as some routine procedures are, failure to recognize syphilis in a given instance should lead the modern physician to do more than blindly enslave himself still further to any single routine aid. It should inspire him to recanvass and furbish up his clinical acquaintance with the disease."

REFERENCE

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SPEAKERS BUREAU RADIO SCHEDULE

WSUI—Tuesdays at 4:00 p. m.

WOI—Wednesdays at 2:15 p. m.

July 2-3 Summer Skin Troubles

Wallace H. Longworth, M.D.

July 9-10 Heat Stroke and Heat Exhaustion

Julian E. McFarland, M.D.

July 16-17 Care of the Baby in Summer

Preston E. Gibson, M.D.

July 23-24 Typhoid Fever

Carl F. Jordan, M.D.

July 30-31 Farm Accidents

Leo C. Nelson, M.D.

LOCUM TENENS AVAILABLE

The central office has on file the names of several physicians who would like to serve as locum tenens. Members who wish to place someone in charge of their practice during the next few weeks may secure these names by communicating with the Iowa State Medical Society, 505 Bankers Trust Building, Des Moines, Iowa.

STATE DEPARTMENT OF HEALTH

Walter L. Bierring

Malaria in the Upper Mississippi Valley

Increased Prevalence in Iowa

In recent years Iowa has experienced a definite increase in the prevalence of malaria; during 1939, reported cases of this disease totaled 62.

It is probable that the incidence of malaria in Iowa is considerably greater than indicated by the cases which have been officially notified to the Iowa State Department of Health. Figures representing the number of cases reported during the seven-year period from 1933 to 1939 and the first six months of 1940 (through June 15), appear in the following table:

YEAR	CASES
1933.....	2
1934.....	4
1935.....	24
1936.....	12
1937.....	12
1938.....	13
1939.....	62
1940 (through June 15).....	14
TOTAL CASES.....	143

Distribution of Cases in Iowa

The map on the opposite page (Fig. 1) indicates the counties from which one or more cases of malaria have been reported since 1933 and the number of cases from each county. It will be noted that the disease has occurred in 35 of the 99 counties of this state. Furthermore, of the total of 143 cases, the counties immediately adjoining the Mississippi river accounted for 88, or 62 per cent of all cases. During 1939 and the spring months of 1940, the city of Dubuque experienced an unusual outbreak of malaria. Forty cases occurred in the city and three additional cases were reported from rural areas of Dubuque County.

Interstate Malaria Conference

On May 23, an interstate conference on malaria was held at the Hotel Julien in Dubuque. Arrangements for the meeting were made with the assistance of Albert J. Entringer, M.D., Du-

bucque City Physician. Attending the conference were representatives from Minnesota, Wisconsin, Illinois and Iowa. Due to the fact that the Missouri Public Health Association was having its annual meeting on the same day, that state could not be represented.

Twenty-nine persons attended the meeting, the first interstate conference for malaria and mosquito control to be held in this part of the middle west. Present were A. J. Chesley, M.D., Health Officer of Minnesota, C. A. Harper, M.D., Health Officer of Wisconsin, and Walter L. Bierring, M.D., Health Commissioner of Iowa. Albert C. Baxter, M.D., Health Commissioner of Illinois, was unable to attend because of conflict with the annual meeting of the Illinois State Medical Society.

In addition to the Health Commissioners, entomologists, public health engineers, medical health officials and two zoologists represented the four states at the conference. The United States Public Health Service was represented by Mr. Frank R. Shaw, Chicago, Senior Sanitary Engineer in Charge, Interstate Sanitary District No. 3, and Mr. J. S. Robertson, Jr., Memphis, Sanitary Engineer.

Dr. Bierring presided at the meeting, Drs. Harper and Chesley serving as co-chairmen. The morning session included presentation by representatives of the several states of reports pertaining to the incidence of malaria in the Upper Mississippi Valley and to results of mosquito surveys conducted during past years. The reports emphasized the direct relationship which apparently exists between the unusual prevalence of malaria and conditions along the Upper Mississippi River favoring propagation of anopheline mosquitoes.

The afternoon session was given over to the presentation and discussion of a comprehensive plan for the control of malaria. It was recommended first, that each state continue surveys and malaria control projects which have been under

way in recent years; and second, that a special survey of malaria and mosquitoes be conducted along the Upper Mississippi River Basin, under direction of the United States Public Health Service.

Interstate Malaria Investigation

Mr. J. A. LePrince, Malaria Expert, United States Public Health Service, has been appointed chief of an interstate malaria investigation of the Upper Mississippi River Basin. Several junior entomologists, botanists, and a junior engineer will assist Mr. LePrince in surveys and studies which will continue through the summer and autumn months of this year.

Reporting of Cases

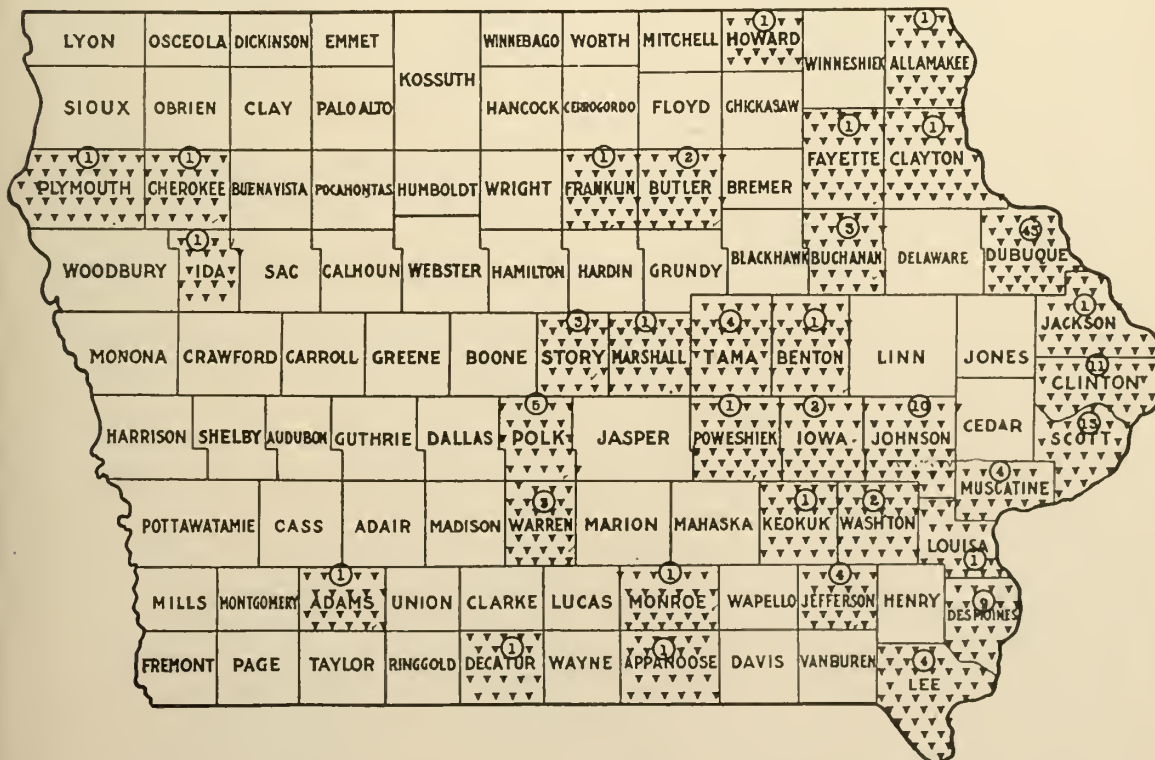
It is desirable that all cases of malaria be reported to local health departments and in turn to the State Department of Health. Accurate diagnosis of malaria is dependent upon the finding of the plasmodium in blood smears from the patient. It is important that smears for diagnosis be obtained prior to institution of specific antimalarial treatment.

Although the majority of malaria cases have been reported from counties adjoining the Mississippi River, interesting outbreaks have been recognized and reported by physicians in other Iowa counties. Cooperation of attending physicians is enlisted so that reporting of cases may be as complete as possible.

PREVALENCE OF DISEASE

Disease	May 1940	April 1940	May 1939	Most Cases Reported From
Diphtheria	16	19	10	For the State
Scarlet Fever	224	260	376	Polk, Scott, Appanoose, Black Hawk, Cerro Gordo, Dubuque
Typhoid Fever	3	4	20	Scott, Winneshiek
Smallpox	39	103	167	Muscatine, Polk, Louisa
Measles	1174	1140	851	Linn, Kossuth, Mahaska, Polk, Story, Dubuque, Poweshiek, Grundy
Whooping Cough ..	149	100	90	
Brucellosis (Undulant Fever)	16	14	22	For the State
Chickenpox	221	189	322	Decatur, Des Moines, Dallas, Marshall
German Measles ...	4	5	0	For the State
Influenza	0	23	13	For the State
Mumps	363	562	185	Des Moines, Black Hawk, Woodbury, Linn, Montgomery
Pneumonia	127	195	114	For the State
Poliomyelitis	2	1	0	Jasper, Pottawattamie
Tuberculosis (Pulmonary)	19	54	67	For the State
Gonorrhea	130	131	128	For the State
Syphilis	198	256	237	For the State

MALARIA IN IOWA—1933-1940 (Through June 15)



The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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SURGERY IN HEMOPTYSIS

The majority of cases of hemoptysis can be controlled by absolute rest and sedation. There are, however, cases in which conservative measures fail and the magnitude of the hemorrhage jeopardizes the life of the patient by exsanguination or suffocation. Collapse therapy has been employed in intractable pulmonary hemorrhage with considerable success, but where collapse is unsuccessful the outcome is inevitable.

In the treatment of intractable pulmonary hemorrhage, Blades and Graham of St. Louis* recommend lobectomy and pneumonectomy when it has been established that the danger from the hemorrhage outweighs the risk of the operation. The authors point out that miracles should not be expected of this procedure, and that patients in the terminal stages of a pulmonary affliction are not candidates for serious operative interference.

Every effort should be made to establish the etiology of the underlying condition responsible for the hemorrhage, but in many cases this is impossible and treatment is aimed at the symptom of hemorrhage, rather than the pathologic lesion. Before surgical intervention is contemplated it is imperative that the source of the bleeding be localized by bronchoscopic examination.

The authors report a group of nine patients, operated upon for the relief of hemoptysis, with one death. The greatest hazard in operating on a bleeding patient is the risk of suffocation or drowning during operation. The type of cases requiring radical surgical intervention were bronchiectasis, atelectasis, broncholiths with erosion of the bronchial artery, and tuberculosis. In the

judgment of the authors, lobectomy and pneumonectomy will be employed more frequently in the treatment of tuberculosis and particularly in those patients suffering from hemoptysis. Thus progress in thoracic surgery has made it possible to save selected cases of intractable hemorrhage from certain death.

WAGNER-GEORGE HOSPITAL CONSTRUCTION BILL

The reporting by the Senate Committee on Education and Labor of the Wagner-George hospital construction bill, S. 3230, to the Senate on April 30, makes it possible to formulate some conception of what may be expected in the way of medical legislation at this session of Congress.

According to an analysis of the bill carried in the May 11 issue of the *Journal of the American Medical Association* (page 1927) "The reported bill proposes a six year program for providing needed hospital facilities. To assist states, counties, health and hospital districts and other political subdivisions of the states to provide better health and medical services through the construction, improvement and enlargement of needed hospitals, especially in rural communities and economically depressed areas, the bill authorizes to be appropriated to the United States Public Health Service first, \$10,000,000 annually for six years, beginning with the fiscal year ending June 30, 1941; second, annual appropriations of \$500,000 for six years for administrative expenses; third, for each of the five fiscal years beginning with the fiscal year ending June 30, 1947, such sums as may be necessary for hospital maintenance grants under the act; and fourth, such sums as may be required by the Public Health Service, after the initial six year period, for necessary expenses in administering such provisions of the act as may then be in operation, as, for example, those relating to grants for maintenance. All amounts authorized to be appropriated are to remain available until expended."

Incorporated in the bill are two plans for hospital construction: Plan I operates during the first fiscal year only, while Plan II relates to the subsequent five years.

Under Plan I hospitals only are to be constructed, but it is necessary to understand what is included in the definition of the term "hospital" as reported in the bill. According to the definition a hospital includes "health, diagnostic and treatment centers, the equipment thereof, and facilities relating thereto." Furthermore the Surgeon General of the United States Public Health Service "will be authorized, after consultation

*Blades, Brian, and Graham, Everts A.: The surgical treatment of intractable pulmonary hemorrhage. *New Internat. Clin.*, iv:77 (December) 1939.

with the Council as to general policies, first, to prescribe standards for training any personnel required in connection with any such hospital project and to assist financially such personnel in securing such required training * * *; third, to make inspections with respect to professional service in and maintenance of hospitals constructed under the act; and fourth, to make such rules and regulations as may be necessary to carry out the purposes of the act, including the prescribing of standards of personnel * * *.

The JOURNAL hazards the prophecy that these two provisions of Plan I may not be too well received by the medical profession at large. The idea of government-built clinic and hospital buildings, staffed by government-controlled physicians to supply medical service to the general public, is difficult to interpret in any other way than governmental participation in the private practice of medicine. However, in all fairness, it must be pointed out that provision is made in the bill for transference of title of such institutions to local units at the end of five years, providing satisfactory evidence is demonstrated that the hospital has been operating in accordance with certain specified rules and regulations. Just what the status of the resident physicians will be after transference of title is not made clear in the bill. A further indication that the interests of private practice may receive consideration comes from the fact that provision is made for the appointment of a National Advisory Hospital Council to be selected from leading medical or scientific authorities who are outstanding in matters pertaining to hospitals and other public services. Applications for hospital construction under Plan I must first be approved by the Council.

Plan II differs from Plan I in several respects. The \$10,000,000 allotments for the second, third, fourth, fifth and sixth years are to be used for constructing, improving or enlarging needed hospitals. Herein deference is paid to the contention of the American Medical Association that existing hospital facilities should be utilized before new hospitals are constructed. Applications under Plan II require approval of the Surgeon General only. Approved applications will receive grants of federal funds of not less than twenty-five per cent, nor more than ninety per cent of the cost of the hospital project. The federal government does not acquire title to hospitals constructed under Plan II. Hospital projects constructed under either plan are to receive grants for maintenance during the first five years of operation.

While the Wagner-George hospital bill is a far cry from the National Health Bill of a year ago, nevertheless it is not altogether free of contro-

versial points. If the bill becomes enacted into law the United States Public Health Service and the Surgeon General will move up to a position of considerably increased magnitude in the affairs of medicine.

THE ADMINISTRATION OF TETANUS ANTITOXIN

That the majority of the deaths in a series of twenty-eight cases of tetanus at the Children's Hospital in Los Angeles were the direct result of treatment and not caused by the disease itself, is the startling decision of Harry F. Dietrich.*

This author concludes that the cause of death is the medullary and cerebral edema resulting from the administration of tetanus antitoxin into the subarachnoid space or into the vein. The administration in these two ways was always followed by a severe, and many times fatal, reaction, characterized by extreme hyperthermia, marked tachycardia, coma, irregular respirations and sudden death. In every instance death occurred in thirty-six hours, and in 84 per cent within three to fourteen hours after the first treatment. In other words, the intravenous or intrathecal injection of antitoxin converted the picture from one of tetanus to a highly fatal bulbar disease. The intramuscular injection of antitoxin is completely safe, and by itself adequate. When the tetanus is most severe, one initial dose of serum with adrenalin may be administered intravenously, but subsequent doses should be given intramuscularly only.

The administration of very liberal doses of sedatives is a most important part of the therapy in tetanus. Three to four grains of seconal every three or four hours control the convulsions in a five year old child, but preserve the pharyngeal and cough reflexes.

In the majority of cases the wounds which cause tetanus in children are so trivial that they arouse no concern at the time they are inflicted, and there is no opportunity for prophylaxis. In the experience of the author the usual prophylactic dose of antitoxin (1,500 units) does not afford adequate prophylaxis in cases of compound fractures.

During the summer months when minor accidents are so common, the possibility of tetanus must not be forgotten, and adequate protection should be afforded the patient. Active immunization of children against tetanus at the time of diphtheria immunization should be encouraged. The hazard of intravenous or intrathecal therapy in the treatment of the patient with tetanus should be remembered.

*Dietrich, Harry F.: Tetanus in childhood. *Am. Jour. Dis. Child.*, lix:693 (April) 1940.

Minutes of the Iowa State Medical Society

Eighty-ninth Annual Session

May 1, 2 and 3, 1940

Wednesday Morning, May 1, 1940

The opening session of the Eighty-ninth Annual Session of the Iowa State Medical Society, held at the Hotel Fort Des Moines, May 1 to 3, 1940, was called to order at eight forty-five o'clock by the president, Dr. Felix A. Hennessy of Calmar.

The invocation was delivered by Bishop Gerald T. Bergan.

Dr. Howard D. Gray, president of the Polk County Medical Society, gave an address of welcome from the Polk County Medical Society, and Dr. Fred M. Smith of Iowa City, second vice president of the Iowa State Medical Society, responded.

Dr. Hennessy called upon Dr. Philip C. Jeans, chairman of the Medical Section, to introduce the first guest speaker of the day, Dr. W. C. C. Cole of Detroit. Dr. Cole addressed the assembly on the subject: "Etiology and Significance of Asphyxia of the New Born."

Following this talk, there was a twenty minute recess to allow time to visit the exhibits, after which Dr. F. E. Bellinger, chairman of the Surgical Section, introduced the second guest speaker of the day, Dr. Arthur E. Hertzler of Halstead, Kansas. Dr. Hertzler gave a talk on the subject: "Principles of Peritoneal Drainage."

Dr. Hennessy concluded the morning's program by delivering his presidential address, and the meeting adjourned at eleven forty o'clock.

Thursday Morning, May 2, 1940

The Thursday morning meeting was opened by an address given by Dr. John de J. Pemberton of Rochester, Minnesota, on the subject: "The Present Status of Surgery of the Spleen." Next on the program Dr. Albert M. Snell of Rochester, Minnesota, addressed the meeting on the subject: "Deficiency States and Their Treatment." A recess for visiting the exhibits was followed by an address by Dr. Marvin F. Jones

of New York, New York. Dr. Jones' subject was: "Trouble Shooting." The meeting adjourned at eleven forty-five o'clock.

Friday Morning, May 3, 1940

The first two hours of the Friday morning meeting were devoted to a symptom clinic, with Dr. Philip C. Jeans of Iowa City presiding. Dr. Ruben Nomland of Iowa City presented the first paper on "Generalized Itching." This was followed by a paper on "Headache" delivered by Dr. John C. Parsons of Des Moines. The next three papers dealt with backache; Dr. Herbert W. Rathe of Waverly discussed backache and its medical aspects; Dr. Arch F. O'Donoghue of Sioux City discussed it from an orthopedic standpoint; and Dr. William F. Mengert of Iowa City dealt with it as seen by a gynecologist. The last paper of the symptom clinic was delivered by Dr. William D. Paul of Iowa City on the subject "Indigestion and Abdominal Pain."

Dr. Alphonse McMahon of St. Louis, vice president of the American Medical Association, next addressed the meeting on: "The Problems and the Aims of the Profession of Medicine."

Dr. Hennessy installed Dr. F. P. McNamara as the new president of the Society. Dr. Parker reported that the total attendance at the meeting had been as follows: 826 society members, 70 guest physicians, 27 other guests, 88 exhibitors, and 225 members of the Woman's Auxiliary, making a grand total of 1,236. He gave a brief report of the Friday morning meeting of the House of Delegates, announcing that the 1941 meeting would be held in Davenport; that the chairman of the medical section would be Dr. C. R. Watkin of Sioux City, chairman of the surgical section, Dr. Frank R. Peterson of Iowa City, and chairman of the eye, ear, nose and throat section Dr. Elmer P. Weih of Clinton.

The meeting adjourned at eleven thirty o'clock.

Section on Medicine

Wednesday Afternoon, May 1, 1940

The first session of the Section on Medicine, held in connection with the Eighty-ninth Annual Session of the Iowa State Medical Society, at the Hotel Fort Des Moines in Des Moines, May 1 to 3, 1940, convened at two p. m. with Dr. Philip C. Jeans of Iowa City, chairman of the section, presiding.

The first number on the program was a sound motion picture entitled "When Bobby Goes to School." This depicted the correct method of making a health appraisal of a normal school child. It was discussed briefly by Dr. Lee F. Hill of Des Moines.

After this four papers were presented, as follows: "The Common Basis of Psychotherapy and General Therapy," by Dr. Andrew H. Woods of Iowa City. This was discussed by Dr. James A. Greene of Iowa City and Dr. John I. Marker of Davenport.

"Nonspecific Lung Disease in Children," by Dr. Clinton E. Harris of Grinnell; discussed by Dr. Walter A. Kirch of Des Moines and Dr. Eugene F. Van Epps of Clinton.

"Streptococcus Infections," by Dr. Ransom D. Bernard of Clarion; discussed by Dr. John F. Loosbrock of Lacona and Dr. Roman J. Fisch of Le Mars.

"The Use and Abuse of Digitalis," by Dr. George B. Crow of Burlington; discussed by Dr. John W. Thornton of Lansing and Dr. Allan G. Felter of Van Meter.

The meeting adjourned at four thirty o'clock.

Thursday Afternoon, May 2, 1940

The first speaker on the second afternoon program was Dr. Albert M. Snell of Rochester, Minnesota. He was introduced by the chairman of the section, Dr. Philip C. Jeans; the title of his paper was "Clinical Types of Hepatic Insufficiency and Their Treatment."

"Subacute Bacterial Endocarditis" was presented by Dr. Matthew T. Morton of Estherville. It was discussed by Dr. Lee R. Woodward of Mason City and Dr. Frank M. Fuller of Keokuk.

"Weed Dermatitis" was the third paper on the program, presented by Dr. Thomas L. Trunnell of Iowa City; discussed by Dr. Louis J. Frank of Sioux City and Dr. Lester W. Kimberly of Davenport.

"Ectopic Pregnancy" was the subject of the fourth paper. This was delivered by Dr. Addison W. Brown of Des Moines, and discussed by Dr. Robert M. Collins of Council Bluffs and Dr. Roderick F. MacDougall of Cedar Rapids.

The final paper of the afternoon was given by Dr. Vernon W. Petersen of Iowa City. His subject was "Results After Thoracoplasty for Pulmonary Tuberculosis." It was discussed by Dr. Jesse C. Painter of Dubuque and Dr. Leon J. Galinsky of Oakdale.

The meeting adjourned at four thirty o'clock.

Section on Surgery

Wednesday Afternoon, May 1, 1940

The first session of the Section on Surgery, held in connection with the Eighty-ninth Annual Session of the Iowa State Medical Society, at the Hotel Fort Des Moines, Des Moines, May 1 to 3, 1940, convened at two o'clock with Dr. Frank E. Bellinger of Council Bluffs, chairman of the section, presiding.

The following papers were presented:

"Prostatic Pathology, Complications and Treatment," by Dr. Nathaniel G. Alcock of Iowa City; discussed by Dr. Oliver J. Fay of Des Moines and Dr. Jennings Crawford of Cedar Rapids.

"Early Diagnosis of Carcinoma of the Large Intestine," by Dr. McMicken Hanchett of Council Bluffs; discussed by Dr. Ernest A. Jenkinson of Sioux City and Dr. Thomas F. Thornton of Waterloo.

"Gallbladder Disease and Its Complications from a Surgical Standpoint," by Dr. Frank R. Peterson, of Iowa City; discussed by Dr. Lester C. Kern of Waverly and Dr. Grant Augustine of Council Bluffs.

"Symptoms and Diagnosis of Joint Disease," by Dr. Karl R. Werndorff of Council Bluffs; discussed by Dr. Arch F. O'Donoghue of Sioux City and Dr. W. Eugene Wolcott of Des Moines.

"Modern Treatment of Varicosities of the Lower Extremities," by Dr. Sebastian A. Carnazzo of Le Mars; discussed by Dr. Walter A. Sternberg of Mount Pleasant.

The meeting adjourned at four thirty o'clock.

Thursday Afternoon, May 2, 1940

The second meeting of the Section on Surgery convened at two o'clock Thursday afternoon, with Dr. Bellinger, chairman, presiding.

The following papers were presented:

"Differential Diagnosis and Treatment of Appendicitis," by Dr. George M. Crabb of Mason City; discussed by Dr. Thomas J. Irish of Forest City and Dr. Harold L. Brereton of Emmetsburg.

"The Management of Minor Industrial Injuries," by Dr. Donald C. Conzett of Dubuque; discussed by Dr. Lee E. Shafer of Davenport and Dr. Barclay J. Moon of Cedar Rapids.

"Intra-abdominal Adhesions," by Dr. Ernest M. Kersten of Fort Dodge; discussed by Dr. Kenneth L. Johnston of Oskaloosa and Dr. Harry E. Pfeiffer of Cedar Rapids.

"Acute Surgical Abdominal Conditions and Their Treatment," by Dr. Aaron Q. Johnson of Sioux City; discussed by Dr. Prince E. Sawyer of Sioux City and Dr. Walter R. Brock of Sheldon.

"Surgical Treatment of Pathologic Conditions of the Stomach," by Dr. Howard D. Gray of Des Moines; discussed by Dr. Charles S. Krause of Cedar Rapids and Dr. Frank W. Fordyce of Des Moines.

The meeting adjourned at four thirty o'clock.

Section on Ophthalmology, Otology and Rhinology

Wednesday Afternoon, May 1, 1940

The opening meeting of the Section on Ophthalmology, Otology and Rhinology, held in connection with the Eighty-ninth Annual Session of the Iowa State Medical Society, at the Hotel Fort Des Moines in Des Moines, May 1 to 3, 1940, convened at two o'clock. Dr. Edwin Cobb of Marshalltown, chairman of the section, presided.

The following papers were presented:

"Fundus in Hypertensive Vascular Diseases," by Dr. Placidus J. Leinfelder of Iowa City; discussed by Dr. Elmer P. Weih of Clinton and Dr. William H. Howard of Decorah.

"Use of Convalescent Scarlet Fever Serum in Otorhinologic Conditions," by Dr. Jack V. Treynor of Council Bluffs; discussed by Dr. Stephen A. O'Brien

of Mason City and Dr. Cecil C. Grant of Cedar Falls.

"Ophthalmologists and Elementary Education," by Dr. George C. Albright of Iowa City; discussed by Dr. J. Kenneth von Lackum of Cedar Rapids and Dr. George J. Pearson of Burlington.

"Increase of Complications in Middle Ear Disease Following Routine Administration of Sulfanilamide," by Dr. F. Harold Reuling of Waterloo; discussed by Dr. Charles E. Chenoweth of Mason City and Dr. Harold O. Gardner of Waterloo.

"Care and Treatment of Acute Sinuses," by Dr. Howard E. Thompson of Dubuque; discussed by Dr. Dean M. Lierle of Iowa City and Dr. Frederick L. Wahrer of Marshalltown.

The meeting adjourned at four thirty o'clock.

Thursday Morning, May 2, 1940

Dr. Hans Brunner of Chicago, Illinois, formerly chief of the Poliklinik of Vienna, conducted a dry clinic for members of the section on Thursday morning, May 2.

Thursday Afternoon, May 2, 1940

The Thursday afternoon meeting of the Section on Ophthalmology, Otology and Rhinolaryngology was called to order by the chairman, Dr. Edwin Cobb, at two o'clock, and the following papers were presented:

"Control of Hemorrhage," by Dr. Marvin F. Jones of New York, New York.

"Vitamins in Ophthalmology," by Dr. Benjamin F. Kilgore of Des Moines; discussed by Dr. Ira N. Crow of Fairfield and Dr. Elam E. Lashbrook of Estherville.

"Tracheobronchial Complications of Tuberculosis," by Dr. Ralph C. Carpenter of Iowa City; discussed by Dr. Wayne J. Foster of Cedar Rapids and Dr. Thomas R. Gittins of Sioux City.

"Treatment of Ocular Phobias," by Dr. Abbott M. Dean of Council Bluffs; discussed by Dr. John A. Thorson of Dubuque and Dr. John E. Rock of Davenport.

The meeting adjourned about four o'clock.

Transactions of the House of Delegates Iowa State Medical Society, Eighty-ninth Annual Session May 1, 2 and 3, 1940

Wednesday Afternoon, May 1, 1940

The opening session of the House of Delegates of the Iowa State Medical Society, in its Eighty-ninth Annual Session at the Hotel Fort Des Moines, Des Moines, Iowa, May 1 to 3, 1940, convened at three forty o'clock, Dr. Frank P. McNamara, Dubuque, The Speaker, presiding.

The Speaker: Will the House of Delegates please come to order? The first thing I want to ask is whether everybody has signed a card indicating his attendance. If not, will you kindly sign at once. You will notice in the handbook in the official call, Dr. Hennessy stated that "motions, resolutions and memorials should be offered in typewritten form, preferably in duplicate, for the convenience of the presiding officer and secretary, and to expedite the conduct of business." If possible, will you kindly do that? The first order of business is the roll call.

Secretary Parker: I move, Mr. Speaker, that the attendance cards, as signed, constitute the official roll call.

The motion was seconded, put to a vote and carried.

The roll call showed the following delegates, alternates, and state society officers present:

Delegates

Adams.....	C. L. Bain	Carroll.....	O. P. Morganthaler
Appanoose.....	J. C. Donahue	Cass.....	R. M. Needles
Audubon.....	L. E. Jensen	Cerro Gordo.....	H. D. Fallows
Black Hawk.....	E. E. Magee	Cherokee.....	C. F. Obermann
Boone.....	A. B. Deering	Clarke.....	C. R. Harken
Bremer.....	L. C. Kern	Dallas-Guthrie.....	E. J. Butterfield
Buchanan.....	F. F. Agnew	Davis.....	C. H. Cronk
Buena Vista.....	M. A. Armstrong	Decatur.....	G. P. Reed
Butler.....	Bruce Ensley	Des Moines.....	J. T. Hanna
Calhoun.....	P. W. Van Metre	Dickinson.....	T. L. Ward
		Dubuque.....	D. C. Conzett
		Emmet.....	J. B. Knipe
		Fayette.....	Howard Risk
		Floyd.....	O. H. Banton
		Franklin.....	J. F. Martin
		Hancock-Winnebago.....	T. J. Irish
		Hardin.....	F. N. Cole
		Henry.....	W. A. Sternberg
		Jackson.....	E. A. Hanske
		Jasper.....	J. C. Hill
		Jefferson.....	J. S. Gaumer
		Johnson.....	E. M. MacEwen
		Johnson.....	G. C. Albright
		Johnson.....	A. W. Bennett
		Keokuk.....	C. L. Hcald
		Lee.....	B. J. Dierker
		Linn.....	T. F. Suchomel
		Linn.....	J. K. von Lackum
		Lucas.....	R. C. Gutch
		Marion.....	H. L. Bridgeman
		Marshall.....	A. D. Woods
		Mills.....	D. W. Harman
		Monroe.....	T. A. Moran
		Montgomery.....	W. S. Reiley
		Muscatine.....	L. C. Howe
		Page.....	J. F. Aldrich
		Polk.....	N. Boyd Anderson
		Polk.....	W. E. Baker
		Polk.....	J. A. Downing
		Polk.....	L. F. Hill
		Polk.....	Fred Moore
		Pottawattamie.....	G. V. Caughlan
		Poweshiek.....	S. D. Porter

Ringgold.....	E. J. Watson
Sac.....	L. B. Amick
Scott.....	George Braunlich
Scott.....	Wm. C. Goenne
Shelby.....	J. P. McGowan
Story.....	Bush Houston
Wapello.....	L. A. Taylor
Warren.....	C. A. Trueblood
Webster.....	H. E. Nelson
Winneshiek.....	A. F. Fritchen
Woodbury.....	R. H. McBride
Wright.....	R. D. Bernard

Alternates

Allamakee.....	J. W. Thornton
Clinton.....	H. A. Amesbury
Fremont.....	A. E. Wanamaker
Iowa.....	H. G. Moershel
Madison.....	H. N. Boden
Mahaska.....	G. H. Clark
Palo Alto.....	G. H. Keeney
Pocahontas.....	T. G. Herrick
Wayne.....	J. H. McCall
Woodbury.....	A. C. Starry

State Society Officers

President.....	F. A. Hennessy
President-elect.....	F. P. McNamara
First vice president.....	E. A. Moore

Second vice president.....	F. M. Smith
Secretary.....	R. L. Parker
Treasurer.....	H. J. McCoy
Trustee.....	O. J. Fay
Trustee.....	J. I. Marker
Trustee.....	L. R. Woodward
Councilor.....	L. I. Carr
Councilor.....	C. H. Cretzmeyer
Councilor.....	F. P. Winkler
Councilor.....	J. E. Reeder
Councilor.....	E. B. Bush
Councilor.....	C. W. Ellyson
Councilor.....	H. A. Householder
Councilor.....	C. A. Boice
Councilor.....	H. A. Spilman
Councilor.....	J. G. Macrae
Councilor.....	M. C. Hennessy

The Speaker: The next matter of business is the approval of the minutes of the Thursday morning session, 1939.

Dr. Fay: I move, Mr. Speaker, that the minutes as published in the July JOURNAL be approved.

The motion was seconded, put to a vote and carried.

The Speaker: We will have the report of the Secretary.

Reports of Officers

REPORT OF THE SECRETARY

House of Delegates, Iowa State Medical Society:

The following report for the year 1939 is respectfully submitted:

MEMBERSHIP

A tabulation of the membership record for 1939 will be found on the next page, but it may be summarized as follows:

Active Members (Life Members Included).....	2,430
Delinquent Members.....	44
Eligible Non-Members.....	206
Ineligible Non-Members.....	78
Physicians Not in Practice or Retired.....	156

This shows a gain of 38 more members for 1939 than for 1938; seven less delinquent members, and three less eligible non-members. There was a decrease also in ineligible non-members and retired physicians. The number of life members increased. We have at the present time 184 life members who do not pay dues, but who receive all of the advantages of membership.

One Hundred Per Cent Counties

In 1938 we had thirty-one counties with one hundred per cent membership in the State Society, while in 1939 we had twenty-seven. They were as follows:

Adair	Louisa
Adams	Madison
Audubon	Marion
Boone	Marshall
Cerro Gordo	Mills
Clarke	Osceola
Davis	Poweshiek
Dickinson	Scott
Emmet	Shelby
Hardin	Tama
Henry	Washington
Howard	Wayne
Ida	Webster

Wright

Counties attaining this figure in 1939 were Clarke, Marion and Mills, whereas those not attaining it a second year were Calhoun, Chickasaw, Floyd, Palo Alto, Story, Van Buren, and Winneshiek. However, in spite of the fact that there were four less counties of one hundred per cent membership, the membership of the entire society was greater than in 1938, including 91 per cent of eligible physicians in 1939, whereas in 1938 it included 90 per cent. We attempt to keep an accurate record of all physicians on file in the central office of the Society. This makes it necessary for us to ask the assistance of each county society secretary about twice a year. We understand how much work this means for them, and appreciate their kindness and cooperation. It is surprising how many calls we receive for information about physicians, and without this up-to-date record, we would be handicapped. Consequently we are very grateful for the assistance of each county society secretary.

Life Members

Two years ago the House of Delegates passed a new rule regarding life membership in the State Society. That ruling now reads: "Any member of the Society who is in good standing may be entitled to life membership provided he has been recommended for such membership by his county society. He shall receive the transactions of the Society and enjoy all the privileges of members, and may be exempted from the payment of dues upon the vote of the House of Delegates." When the House of Delegates changed the rule in regard to life membership, it felt that the recommendation for life membership should be left to the county society which is, after all, the best judge of whether or not a physician should be so honored. It seemed

1939 MEMBERSHIP RECORD

County	1939 Membership	Delinquent Members	Eligible Non-Members	Ineligible Non-Members	Not in Practice or Retired	Percentage of Eligible Physicians Who Are Members
Adair	9	---	---	---	1	100
Adams	7	---	---	---	---	100
Allamakee	7	1	3	1	---	64
Appanoose	12	---	3	---	1	80
Audubon	10	---	---	---	---	100
Benton	20	---	3	---	1	87
Black Hawk	66	---	2	6	3	97
Boone	22	---	---	---	1	100
Bremer	20	---	1	1	---	95
Buchanan	21	---	1	1	---	95
Buena Vista	18	---	2	---	1	90
Butler	11	---	2	---	---	85
Calhoun	24	---	1	---	1	96
Carroll	23	1	3	---	3	85
Cass	21	---	1	---	1	95
Cedar	9	2	6	---	---	53
Cerro Gordo	48	---	---	2	1	100
Cherokee	13	1	6	---	2	65
Chickasaw	15	---	1	---	---	94
Clarke	10	---	---	---	---	100
Clay	12	---	4	2	---	75
Clayton	20	1	3	---	1	83
Clinton	45	---	3	2	2	94
Crawford	13	3	1	---	---	77
Dallas-Guthrie	44	---	5	1	1	90
Davis	11	---	---	---	---	100
Decatur	8	---	2	1	---	80
Delaware	12	2	6	---	1	60
Des Moines	36	1	3	1	1	90
Dickinson	13	---	---	---	---	100
Dubuque	68	---	5	---	2	93
Emmet	13	---	---	---	---	100
Fayette	20	4	8	1	1	62
Floyd	16	---	1	1	1	94
Franklin	11	---	2	---	---	85
Fremont	12	---	1	---	---	92
Greene	21	---	2	---	1	91
Grundy	9	---	3	---	---	75
Hamilton	18	1	---	---	2	95
Hancock-Winnebago	18	2	4	---	3	75
Hardin	26	---	---	---	4	100
Harrison	14	2	3	---	---	74
Henry	18	---	---	---	---	100
Howard	11	---	---	---	1	100
Humboldt	5	---	2	1	---	71
Ida	12	---	---	---	2	100
Iowa	9	1	3	---	4	69
Jackson	16	1	1	1	1	89
Jasper	29	2	3	---	1	85
Jefferson	18	---	2	---	2	90
Johnson	146	3	19	---	6	87
Jones	13	---	1	1	---	93
Keokuk	14	1	1	5	---	88
Kossuth	14	---	2	1	1	88
Lee	37	2	5	4	1	84
Linn	103	2	6	3	4	93
Louisa	10	---	---	1	2	100
Lucas	13	---	1	---	1	93
Lyon	8	1	1	---	2	80
Madison	11	---	---	---	1	100
Mahaska	20	---	1	1	4	95
Marion	20	---	---	2	8	100
Marshall	46	---	---	1	3	100
Mills	13	---	---	---	---	100
Mitchell	12	---	3	---	---	80
Monona	12	1	---	---	1	92
Monroe	10	---	4	---	---	71
Montgomery	18	---	1	---	---	95
Muscatine	23	---	1	1	1	96
O'Brien	16	1	3	---	1	80
Osceola	9	---	---	---	---	100
Page	17	---	8	1	1	68
Palo Alto	12	1	---	---	---	92
Plymouth	13	---	7	1	3	65
Pocahontas	10	---	7	1	---	59
Polk	244	1	16	9	46	93
Pottawattamie	58	2	2	---	2	94
Poweshiek	22	---	---	---	---	100
Ringgold	6	1	2	---	1	67
Sac	22	---	1	---	---	96
Scott	89	---	---	12	4	100
Shelby	9	---	---	---	1	100
Sioux	16	---	1	---	---	94
Story	35	1	---	1	2	97
Tama	26	---	---	---	2	100
Taylor	6	---	1	---	1	86
Union	14	---	1	1	1	93
Van Buren	12	1	---	---	---	92
Wapello	42	---	2	2	---	95
Warren	10	---	3	1	---	77
Washington	20	---	---	---	---	100
Wayne	12	---	---	---	---	100
Webster	44	---	---	---	2	100
Winnebago	15	1	---	1	---	94
Woodbury	116	---	3	6	5	97
Worth	5	---	1	---	---	83
Wright	23	---	---	---	2	100
Total	2,430	44	206	78	156	91

to be the feeling of the House that life membership should not be granted merely as an escape from payment of dues, but rather as a mark of recognition, or because of ill health or disability. There are at the present time, as I have said, 184 life members who do not contribute to the support of the Society, but who receive all the advantages of membership, including protection against malpractice suits. This is 7.5 per cent of our membership. I am sure that none of us begrudges bestowing life membership upon disabled physicians, and I know we are all glad to grant it to those who have been recommended for such recognition as a mark of merit. The point to keep in mind is that a substantial part of the support of the Society comes from dues, and if the percentage of life members continues to increase rapidly, the income will drop and the load per individual will increase.

Care of the Indigent

More and more the responsibility for medical care of the indigent has been shifted from state to county. This is as it should be, in our opinion. The majority of the counties have worked out fairly satisfactory arrangements for this care. We should like to have information from each county about the system employed, and whether or not it is working. Three counties, Muscatine, Union and Marion, experimented with a prepayment plan of medical care for FSA families during 1939. A more complete description of these activities will be found in the report of the Medical Economics Committee. The Compensation Office of the WPA has asked this office to check its records each month to determine that medical care of WPA workers is being distributed evenly among the physicians in each county. This has been done, and a report prepared showing abuses, if any, and the number of cases and physicians in each county each month.

State Society Services

The central office of the State Society exists to serve you. During 1939 your secretary, acting upon a request from eye physicians, conferred with officials of the State Board of Assessment and Review and obtained a ruling that beginning January 1, 1940, the physician need no longer keep a record of sales tax on eye glasses. Henceforth he will be charged sales tax on his invoices by the optical laboratory, but will not need to collect it from his patients and remit it quarterly as he has done in the past. This will save him much book work and annoyance, and we are happy to have secured the ruling. We also conferred many times with the Narcotic Division of the State Board of Pharmacy Examiners in regard to violations of the narcotic law. We protested strongly against the use of "stool pigeons" by the Division, and also asked that a copy of the law, together with a suggested form for keeping the required records, be mailed to each physician. This is to be done during the spring months. Remember that the central office is yours to call upon for advice or help. It should

be the clearing house for the entire Society, and we hope you will use it.

Financial Report

The financial report for the year 1939 is to be found in the Treasurer's Report which follows. The income of the Society is given in summarized form, as are the expenses. A glance at this will show you how much money is brought in by dues, and how much through other mediums such as the Journal, the Speakers Bureau, the annual meeting, interest and miscellaneous. The expenditures have been broken down into departments so that you may see the amount each is using. The net worth of the Society is also given in the statement of investments and funds on hand.

The books of the Society have been audited by a certified public accountant, Widdup and Company, and a copy of the report is on file in the central office as well as in the offices of Dr. L. R. Woodward of Mason City and Dr. John I. Marker of Davenport, trustees. Any member of the Society may see this detailed record of finances at one of the above mentioned offices. It is available to all members.

Robert L. Parker, Secretary

Secretary Parker: Mr. Speaker, I move that the Secretary's report as published in the handbook be accepted by this House and approved; and, further, I move that all the reports as published in the handbook, be received by this body.

The motion was seconded, put to a vote and carried.

The Speaker: The next order of business is the report of the Treasurer.

REPORT OF THE TREASURER

House of Delegates, Iowa State Medical Society:

The financial statement of the Society for the year 1939 is herewith respectfully submitted. The books and accounts of the Society have been audited by a certified public accountant, and his detailed report is on file in the offices of two of the trustees, John I. Marker of Davenport and Lee R. Woodward of Mason City, and the third copy in the central office. These copies are open to inspection by any member of the Society at any time during office hours.

For the sake of clarity and brevity, a concise financial statement is given below:

INCOME AND EXPENSE ACCOUNT

INCOME	
Dues	\$22,325.00
Advertising	7,590.07
Reprints	1,347.94
Miscellaneous	125.79
Speakers Bureau	
Fees	1,679.58
Travel Expense Refund	8.00
Miscellaneous	79.17
Annual Session	3,103.00
Interest, Savings Account	32.40
Interest, from Bonds	1,393.13
TOTAL INCOME	\$37,684.08

EXPENDITURES

Administrative Miscellaneous	\$ 692.66
Rent and Office Supplies	1,868.55
Stationery and Printing	619.24
General Salaries	5,005.90
County Society Services	148.16
Trustees	163.71
Council	1,015.25
Legislative Committee	4,500.00
Medical Economics Committee	191.87
Other Committees	878.19
Annual Session	3,379.92
Journal Printing and Engraving	11,581.70
Reprints	1,067.65
Bank Charges	1.95
Total	\$31,114.75

Speakers Bureau

Salaries	\$1,492.50
Travel Expense for Speakers	783.90
Travel Expense, Postgraduate	1,254.67
Radio Talks	74.62
Stationery, Printing, Telephone, etc.	772.39
Miscellaneous	49.87
Total	\$ 4,427.95

TOTAL EXPENDITURES\$35,542.70

EXCESS INCOME OVER

EXPENDITURES\$ 2,141.38

* * *

Investments and total funds are shown in the following analysis and summary:

Net Income for the year 1939	\$ 2,141.38
Cash in Banks at beginning of year	2,244.89
Treasury Bonds on hand at beginning of year (cost)	44,491.09

TOTAL FUNDS\$48,877.36

Represented by:

Cash in Banks:

Bankers Trust Co.	
(Treasurer's Account)	\$2,694.63
Bankers Trust Co.	
(Secretary's Account)	46.42
Bankers Trust Co.	
(Savings Account)	1,645.22

Total Cash in Banks.....\$ 4,386.27

Treasury Bonds:

3% Due 9-15-55 (Par Value)	\$ 9,000.00
3½% Due 3-15-43 (Par Value)	25,500.00
2¾% Due 6-15-54 (Par Value)	5,000.00
2½% Due 12-15-53 (Par Value)	5,000.00
Less Discount on Purchase of Bonds	8.91

Total Treasury Bonds (Cost).....\$44,491.09

TOTAL CASH AND BONDS (As Above)..\$48,877.36

Harold J. McCoy, Treasurer

Dr. McCoy: I move that this report be adopted.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the report of the Board of Trustees.

REPORT OF THE BOARD OF TRUSTEES

The Board of Trustees of the Iowa State Medical Society met frequently during 1939 and in addition held numerous consultations by phone and mail in order to carry on to best advantage the work of the Society. Several times during the year various committees made requests for special funds and rather than let these wait for a scheduled meeting of the Board, the request was discussed by phone or mail and the decision given.

The Board of Trustees is glad to report that the financial status of the State Society is good. This is shown in detail in the treasurer's report. Although the income from dues was \$13,200 less than the expense of running the Society, income from other sources took care of this difference. However, this condition would seem to indicate that a substantial reserve is necessary, since the sources of other income are subject to fluctuation. It is already known that the 1941 legislative session will bring many problems which will probably necessitate increased expenditures. Skilled help will be needed to confront the problems which we already know will arise, and this must be kept in mind.

Another point which the Board would like to emphasize is the growing number of life members. In 1939 there were 184 physicians, life members, who paid no dues. This was 7.5 per cent of the total membership and the cost to the Society was \$1,840.00. The Board does not believe the State Society begrudges this loss of income, but wishes to point out that the number of life members is increasing rather than decreasing, while the number of physicians in the state is not changing materially. This means that we cannot count on increasing income from dues, but must take into consideration the fact that more of our members are asking life membership as they advance in years. In view of the foregoing, the Board recommends that the dues for 1941 remain \$10.00.

Two changes were made in committee personnel during the year. Dr. Dennis H. Kelly of Des Moines was named associate editor of the Journal in the place of Dr. R. R. Simmons, and Dr. B. B. Parker of Centerville was named to the Medical Economics Committee in the place of Dr. A. C. Moerke of Burlington who died during the year. The Board did not name a delegate to the American Medical Association to replace Dr. Treynor, feeling that the House of Delegates should do this since there would be no meeting of the American Medical Association before our annual meeting. No changes were made in office personnel.

The Board of Trustees cannot conclude its report without an expression of thanks to the officers and committees who have carried on the work of the Society during the year. All have been active, and their interest and support have helped carry forward the ideals of the medical profession for better care of the sick.

Oliver J. Fay, Chairman
John I. Marker
Lee Roy Woodward

Dr. Fay: Mr. Speaker, I move that the report of the Board of Trustees as published in the handbook be adopted.

The motion was seconded, put to a vote and carried.

The Speaker: The next is the report of the Council.

REPORT OF THE CHAIRMAN OF THE COUNCIL

Three meetings of the Council have been held since the last meeting of the House of Delegates. At its first meeting the Council appointed Dr. Joseph B. Priestley of Des Moines chairman of the Speakers Bureau, the remainder of the committee to consist of Dr. Earl B. Bush of Ames, Dr. T. F. Hersch of Cedar Rapids, Dr. Walter R. Brock of Sheldon, Dr. Sydnor D. Maiden of Council Bluffs, and Dr. James Dunn of Davenport.

The second meeting was held Wednesday, November 8, 1939, at Hotel Fort Des Moines with all members present. The chairman called upon Dr. Sorensen to explain the new plans of the State Department of Health in regard to the distribution of anti-syphilitic drugs. Dr. Sorensen stated that the situation was bad, and that druggists had asked to be relieved from participation. After some discussion of three different plans presented by the State Department of Health, plan number one was adopted. Under this plan, the State Department of Health will purchase drugs directly from the manufacturers. The contract will be awarded on a bid basis. Doctors will be served directly by the State Department of Health. The chairman also appointed a special committee to consider the question of naming a permanent committee on tuberculosis with the approval of the Council. This committee consisted of Dr. C. W. Ellyson of Waterloo, Dr. C. A. Boice of Washington, and Dr. L. L. Carr of Clermont. The Council felt that tuberculosis work should be under the control of the medical profession, and that an active committee should be named by the Council; that there should be leadership from the medical society instead of forced action through legislation. It was moved and seconded that the above committee investigate the tuberculosis problem and report back at the next meeting. Motion was carried.

On March 10, 1940, this committee made its report to the Council as a whole as follows:

"We recommend that the chairman of the Council, with the approval of the Council, name a committee to be known as the State Society Committee on Tuberculosis. This committee shall consist of five members. The duties of this committee shall be largely those of a professional advisory committee on tuberculosis to act in cooperation with the State Department of Health and the Iowa Tuberculosis Association, and to assist in coordinating the activities of these organizations with the Iowa State Medical Society. The committee shall further cooperate with the Speakers Bureau to arrange programs before the county medical societies concerning tuberculosis, its incidence and means of control. It shall further urge county medical societies to cooperate with the Christmas Seal Committees in raising funds, and shall ad-

vised concerning the expenditure of those funds within the county for case-finding or treatment programs. It shall further, if and when advisable, urge the appointment of committees on tuberculosis in county medical societies." It was the opinion of the Council that the chairman should appoint five members geographically distributed over the state. The chairman appointed the following: Dr. C. A. Boice of Washington, Dr. J. C. Painter of Dubuque, Dr. H. E. Stroy of Osceola, Dr. W. H. Gibbon of Sioux City, and Dr. A. A. Schultz of Fort Dodge. These appointments were approved by the Council. Dr. M. C. Hennessy of Council Bluffs was appointed chairman of the Executive Cancer Committee. Under Dr. Hennessy's leadership, the Cancer Committee has done a good piece of work in coordinating the activities of cancer control in Iowa, which his report, as chairman, will show.

Judging from the various councilor district reports, it would seem that the scientific activities of organized medicine throughout the state have been moving forward and upward in a satisfactory manner.

F. P. Winkler, Chairman of the Council

REPORTS FROM COUNCILOR DISTRICTS

First Councilor District

For the first time in several years it looks as if democratic medicine has won a victory and is to be with us at least for a few more years. Appearances, however, sometimes deceive, and it may be only a reprieve, and so it still seems necessary to be eternally vigilant and work as hard as ever for organized medicine. In reviewing the deputy councilors' reports from the first district, I believe the two essential principles for maintaining organized medicine are present: first, our membership in the State Society is being maintained; and, second, public health and immunization programs are being taken care of satisfactorily by the medical profession. The weakest link in our district is the careless attitude among the rank and file of practitioners to the importance of postgraduate work. I feel that steps should be taken to correct this. I hereby submit the following reports from the deputy councilors of the first district.

L. L. Carr, Councilor

Allamakee County. Medical Relief Set-up: We use the old Iowa plan under which we submit our bills to the supervisors and an auditing committee. We take care of approximately 100 families, most of them in the east half of the county. Our plan is only fairly satisfactory.

Public Health Program: We tried to cooperate with the statewide smallpox vaccination program, but it was only partially satisfactory. This was due both to a change of county health nurses at that time and to poor cooperation on the part of the county newspapers. In all not over 250 children were vaccinated.

We have no interprofessional organization. About three or four of our members attended the postgraduate course sponsored in the First District. Our

membership is greater by two than it was last year. We have two men not eligible for membership.

John W. Thornton, Deputy Councilor

Bremer County. Medical Relief Set-up: We have a contract with the county board of supervisors based on a fee schedule. We have about 150 families to care for. The patients have free choice of physician. We have three physicians on the auditing committee. Our plan works very well.

Public Health Programs: We did not take part in the statewide smallpox program because we had had one of our own the year before and we expect to have another next year. We also conduct a diphtheria immunization program.

We have no interprofessional organization. Our membership is the same as last year, with all but one eligible member paid.

P. K. Graening, Deputy Councilor

Chickasaw County. Medical Relief Set-up: We have a contract with the county board of supervisors based on a lump sum of \$375.00 per month. We care for about 149 families, giving them free choice of physician. We have an auditing committee. This plan works very well.

Public Health Programs: We cooperated with the statewide smallpox vaccination program, vaccinating about 800 children and adults. We carried out no other county health program, although some towns conducted their own programs.

We have no interprofessional organization. Our membership is in good condition and everything in general seems to be functioning very well. A small percentage of our men attended the postgraduate course of the district.

Paul E. Gardner, Deputy Councilor

Clayton County. Medical Relief Set-up: We have no contract with the county board of supervisors but have been carrying on as in the past; i.e., we turn in our bills at our usual rates, and the county cuts them one-third. We have been faring much better than our neighbors and have no complaint to make. The approximate number of families cared for is about 100.

We did not carry out a smallpox program last year because the state program came at the time of an extensive campaign we carried out over the entire county. This took care of all children and adults and produced considerable commotion.

We have an interprofessional organization, but it is not active. The officers selected at the time are not progressive.

P. R. V. Hommel, Deputy Councilor

Fayette County. Medical Relief Set-up: We have the same plan as last year. This consists of an agreement with the county supervisors on a fixed fee schedule, rather than a lump sum contract. We have no auditing committee. The plan works only fairly satisfactorily and many persons feel it should be improved. The patients, of whom there are about 200 or 250, have their choice of physician.

Public Health Programs: We cooperated in the statewide smallpox vaccination program with very

good results. Over 1,200 persons were vaccinated, including adults. Our county superintendent of schools deserves much credit for assisting the committee in getting the country school students vaccinated. We held no other county public health programs, but many towns and some townships conducted their own programs and vaccinated against diphtheria and smallpox.

We have no interprofessional organization. Two lectures of the district postgraduate course were held in our county but were poorly attended.

H. H. Wolf, Secretary

Floyd County. Medical Relief Set-up: Our medical relief set-up continues on the same basis as that followed last year. We have a contract with the county board of supervisors for 40 per cent of our regular fee schedule. The patient has free choice of physician and the plan is working satisfactorily.

We cooperated in the statewide smallpox program, and also held a diphtheria immunization program in Charles City. All eligible physicians in Floyd County are active members of the county society.

Ray A. Fox, Deputy Councilor

Howard County. Medical Relief Set-up: We do not have a contract with the county board of supervisors. However, we have a flexible fee schedule and are carrying on the original relief set-up organized in Iowa under the federal plan. There are 217 families being cared for under this plan. The patient is allowed free choice of physician provided his physician is participating in the plan. There is an auditing committee and the plan has worked out satisfactorily.

Public Health Programs: We held the smallpox program early in the fall and vaccinated between 1,200 and 1,400 children. Medical services were donated by members of the county society. We have no interprofessional organization. All in all we feel that we have had a successful year.

William A. Bockoven, Deputy Councilor

Mitchell County. Medical Relief Set-up: We have a contract with the board of supervisors based on a fee schedule. I do not know the number of families receiving care, but the plan works very satisfactorily for both patients and physicians.

Public Health Programs: We cooperated in the statewide smallpox vaccination program and met with very gratifying results. Between 300 and 400 children and adults were vaccinated. We had no other health program.

All but three eligible doctors are members of our county society. We have no interprofessional organization.

T. S. Walker, Deputy Councilor

Winneshek County. Medical Relief Set-up: We have a contract with the county board of supervisors based on a fee schedule. Patients have their choice of physician. Bills are audited by a committee of three doctors, the director of relief, a dentist and a pharmacist. Our plan seems to work satisfactorily, although there are some things to be desired.

Public Health Programs: The doctors were sincere in their desire to cooperate in the statewide smallpox vaccination program, but the response from the public was not as good as one would like. We have no definite public health program, and believe one should be adopted. We do not have a record of all children vaccinated or immunized. Last fall we held a recheck at the Decorah Hospital on children and adults with positive Mantoux tests.

The county has an interprofessional organization which has been slipping and very little has been done to try to revive it.

L. J. Hospodarsky, Deputy Councilor

Second Councilor District

Herewith are submitted the reports of the deputy councilors for the second district. On the whole the reports show that the members are alive to the problems that confront the profession.

C. H. Cretzmeyer, Councilor

Butler County. Relief work in Butler County is done on the basis of a fee schedule without a contract. The patient has his choice of physician. We have an auditing committee of physicians, all members of the Butler County Medical Society, which meets each month and passes on the bills which have been presented to the county board of supervisors for payment. The plan is fairly satisfactory.

There were five business meetings of the county medical society during the year, but no scientific sessions. The county society sponsored a tuberculosis program in cooperation with the State Department of Health. The society cooperated in the state smallpox vaccination program and also carried on a diphtheria immunization campaign.

Butler county has no interprofessional organization. Two members were lost through death during the year, Doctors C. C. Smith of Clarksville and John Rolfs of Aplington.

Bruce Ensley, Deputy Councilor

Cerro Gordo County. Medical Relief Set-up: We are operating under a contract which was drawn up by the county board of supervisors three years ago. This is on a fee schedule basis, the money being paid to the county society. After the expenses of the county society, including its meetings, membership fees and other incidentals, are paid, the balance of the fund is prorated among the members. There is an auditing committee. Approximately 400 families are on relief. We assign three or four doctors to care for the bulk of the county work for two months of the year. The patient has a free choice of physician, but the physician is not required to carry a patient longer than the two months assigned to him unless he is interested in following the case. Although the plan has worked satisfactorily up to the present time, the county supervisors are now complaining about the cost.

Public Health Programs: A tuberculosis testing program was carried on during the year; 825 persons were tested, with 121 positive reactions. We cooperated in the statewide smallpox and diphtheria campaign, vaccinating 893 patients against small-

pox and immunizing 483 against diphtheria. A well baby clinic, with which the Woman's Club assists, is held once a month, with an average of ten babies being seen each month. We do not have an interprofessional organization.

Jay E. Houlahan, Deputy Councilor

Franklin County. Medical Relief Set-up: We have a contract with the county board of supervisors based on a fee schedule, which amounts to about \$7,500.00 a year besides hospital fees. There are about 1,000 families on relief. Three members of the county society act as an auditing committee, and the plan works satisfactorily. The county board of supervisors gives the medical society all it can levy under Iowa statutes, and we make that suffice by prorating when necessary.

We did not cooperate with the smallpox vaccination program, and had no public health program of our own. There is no interprofessional organization in our county.

J. C. Powers, Deputy Councilor

Hancock County. Medical Relief Set-up: We do not have a contract with the county board of supervisors. Each family whose medical expenses are paid by the county chooses its own doctor, and the county allows \$1.50 for a house visit and \$1.00 for office visits. Operative work is paid for on the same basis as the contract of the Cerro Gordo County Medical Society, which is approximately fifty per cent of the regular fee schedule. In most instances we get along very well with the board, and our plan is satisfactory, perhaps because we have a small county with no large cities. Competitive bids are taken each year on the contract for care of the inmates of the county home.

We cooperated in the statewide smallpox vaccination program, but it was not very successful. We do not have a public health program of our own. Figures showing the number of children vaccinated and immunized are not available. We held no child health clinics, and we have no interprofessional organization.

To speak frankly, I believe the Hancock-Winnepago Medical Society is practically deceased. In my opinion the two counties should have separate societies. I am afraid the situation will not improve until this is done. The majority of our members attend the Cerro Gordo society meetings, and we do well if we meet once a year to elect officers.

George A. Bemis, Deputy Councilor

Humboldt County. Medical Relief Set-up: There is no formal contract between the doctors and the supervisors, but simply an agreement based on a fee schedule. Out of 351 families on relief, 230 families had medical care. The county spent \$16,406.58 for medical, nursing, hospital, chiropractic, osteopathic and dental care. Our quota of 39 University Hospital patients was not exceeded. About ten per cent of the county's population is on relief. Free choice of physician is allowed. Apparently the plan has been satisfactory, because it has been

followed for the past five years. Bills are submitted monthly to the county welfare worker but there is no auditing committee.

Public Health Program: One hundred seven children were vaccinated for smallpox in a local school project, and 280 pupils were given physical examinations for a small fee, all the local physicians co-operating.

The interprofessional organization is not functioning. A number of our members attended the postgraduate course at Algona last fall and profited thereby.

Ivan T. Schultz, Deputy Councilor

Kossuth County. Indigent patients were cared for on the same basis as in the past, on the same fee schedule which has been in effect for several years. This schedule was reached by an agreement between the board of supervisors and a committee from the county medical society. Patients are given free choice of physician, and are certified by the relief worker or their respective supervisor. The plan has proved satisfactory at all times.

During the fall, we held a postgraduate course, arranged by the Speakers Bureau, in Algona. An average of about thirty physicians attended. No regular meetings were held, but we called several business meetings, at some of which we had a program.

We cooperated in the statewide smallpox vaccination program in the fall, and are planning to sponsor a tuberculosis program. Members of the county society gave several talks on medical subjects and on socialized medicine to lay groups. The society voted unanimously against entering into an insurance plan with the Farm Security Administration.

John N. Kenefick, Deputy Councilor

Winnebago County. Medical Relief Set-up: Care of the indigent is paid for by the county at one-half the state fee schedule. The plan is working satisfactorily.

We cooperated in the statewide smallpox vaccination program, vaccinating about 800 persons. No other public health programs were held. We have no interprofessional organization.

T. J. Irish, Deputy Councilor

Worth County. The Worth County Medical Society was inactive during the past year. No meetings were held, but some members attended meetings in neighboring counties. One physician moved from the county, and one located here during the year.

Medical Relief Setup: Our plan is based on a fee schedule and has worked very satisfactorily for several years, the rates being approximately 60 per cent of regular fees. Patients have their choice of physician, and each physician submits his bill to the board of supervisors.

The society cooperated with the State Department of Health in locating and tuberculin testing all suspects and contacts, concluding the campaign with an x-ray clinic at the county seat. The smallpox

vaccination program did not receive the support it justly merited, because no organization undertook to sponsor the program.

S. S. Westly, Deputy Councilor

Wright County. Medical Relief Set-up: Our medical relief plan is modeled in part on the IERA plan as set up in April, 1935. This is especially true of fees for services rendered the indigent of our county. The patient applies to the relief committee, and is issued an authorization to the physician of his choice. The bill for such services is sent to the relief office to be passed upon by the auditing committee which is composed of the deputy councilor, president and secretary of the county society. This committee meets once a month to audit the bills, and they are then paid in full by the county board of supervisors. The board never questions the bills approved by the auditing committee, but the committee is sometimes forced to cut them. These fees are paid to the county society secretary. From them the expenses of running the society, including the salary paid the secretary, and membership dues, are paid, and the balance is prorated among the members. However, if a physician does not give enough service to pay his membership fees, he is required to pay in cash the difference between what he earned and the full amount of such fees. Doctors rendering emergency service without an authorization from the relief office report it at once. The relief office then investigates the situation, often calling upon the county society for advice; it then authorizes the service if it is found necessary. The board of supervisors feels that it has been saved much money by the auditing committee, the members of which are paid for their services.

Public Health Programs: Our county society co-operated in the statewide vaccination program. The program was carried out in the public schools in Clarion, Eagle Grove, Belmond and Dows, and pre-school, school children and adults were vaccinated. We had no other public health program, but members of the society gave talks to lay organizations, and we cooperated with the 4-H Club workers in examining its members. We have an interprofessional organization, but it is not active. During 1939 we had seven or eight meetings and took in two new members. We had several scientific programs which were well attended. Much interest was shown in matters pertaining to the profession and its future.

J. H. Sams, Deputy Councilor

Third Councilor District

The counties in the third district cooperated in the statewide immunization program and made a very good showing. The Emmet County Medical Society has formulated a new fee schedule, and is now attempting to arrive at an agreement with the board of supervisors for medical care of the indigent. The third district sponsored a postgraduate course at Sheldon in the fall. Fifty-eight physicians enrolled, and the attendance was excellent. We plan to have another course in 1940. The Women's Field Army,

under the direction of Mrs. W. Vander Wilt, made good progress in its work of lay cancer education. Herewith are submitted the reports from the deputy councilors, and to them go my thanks and deep appreciation for their splendid cooperation in the work of the medical profession in this district.

F. P. Winkler, Councilor

Clay County. Medical Relief Set-up: The county society has a contract with the board of supervisors for care of the indigent, based on a lump sum for medical cases, and a fee schedule for obstetric and major surgical cases. The society receives a lump sum of \$350.00 each month, which covers the medical care of approximately 120 families in the summer months and 360 in the winter. The county pays for medical prescriptions, serums, liver extract and insulin. The fee for obstetric cases is \$25.00, and that for surgery is 40 per cent of the state minimum fee schedule. Bills are prorated when the appropriation of \$350.00 is exceeded. The plan is fairly satisfactory.

The society cooperated in the statewide smallpox program but received little response from the schools. The tuberculosis case-finding program which was started in 1938 was continued. There is no inter-professional group in the county.

J. M. Sokol, Deputy Councilor

Dickinson County. Medical Relief Set-up: We do not have a contract with the board of supervisors for care of the indigent, but have an agreement to render medical care on the basis of a fee schedule determined by the county society and board. There are 56 families on direct relief; they are allowed free choice of physician. We do not have an auditing committee, but the plan works satisfactorily. We have one hundred per cent membership in the county and state societies. Twelve meetings were held during the year, and all the students in the county schools were vaccinated for smallpox and immunized against diphtheria. We have an interprofessional organization.

C. G. Nicholson, Deputy Councilor

Emmet County. Medical Relief Set-up: We have no contract with the board of supervisors for medical care of indigent patients, but we do have a verbal agreement to care for these patients on a fee schedule which is 25 per cent lower than the one which we adopted recently. The one we have adopted for use in the county is based on the state minimum fee bill recommended by the Medical Economics Committee. Medical care is authorized by the relief office, and the patient has free choice of physician. The plan works fairly well.

We cooperated in the statewide smallpox program, giving it publicity through all schools in the county. A nominal fee was charged by the physicians, and a number of persons were vaccinated. The society advocates vaccination and immunization for preschool children, and so there were not many unprotected in the county. We have an interprofessional organization but it is not active.

J. B. Knipe, Deputy Councilor

Lyon County. We gained three new members during 1939 and lost two, one by death and one by re-

moval from the county. Our society was not as active as in former years, but we sponsored a smallpox vaccination program, and attended the post-graduate course at Sheldon.

We take care of indigent patients on the basis of a fee schedule. Bills are submitted monthly and are audited by a committee appointed by the medical society before being presented to the board of supervisors.

L. L. Corcoran, Deputy Councilor

O'Brien County. We held two general and two special meetings during the year. We conducted a follow-up program on tuberculosis during the summer, gave Schick tests to school children in October, and worked on the statewide smallpox vaccination program in November. We presented a postgraduate course in October and November in cooperation with the Speakers Bureau. Fifty-eight physicians enrolled, and the attendance at all meetings was very good. We felt it was a very valuable course.

The county society revised its fee schedule during the year, and made it complete so that it will be applicable in all situations. A contract was then made with the board of supervisors for care of the indigent and old age assistance groups. Regular medical care is to be billed at two-thirds the new fee schedule; major surgery at one-half the schedule. The district supervisor approves each call for medical care, and no other authorization is necessary.

W. R. Brock, Deputy Councilor

Osceola County. The county medical society held three regular and three special meetings during the year. The tuberculosis case-finding program of 1938 was followed by a check in 1939, with 78 patients being x-rayed. The county cooperated in the smallpox program, vaccinating and immunizing those who had not been protected previously. We also gave a number of Schick tests. The physicians in the county are cooperating one hundred per cent with the public health nurse in all public health cases, including maternity and child welfare.

The county society met with the board of supervisors to discuss a program of medical care for indigent patients, and both groups left the meeting with a better understanding of the problems involved. The old contract for such care was renewed for another year.

Frank Reinsch, Deputy Councilor

Palo Alto County. There are thirteen doctors in Palo Alto County, all of whom are members of the county society. Indigent and low income patients received medical care from the physician of their choice. Bills for this service are paid on the basis of a fee schedule which has been adjusted to meet the situation.

The society held eight meetings during the year, and in addition participated in the work of the Upper Des Moines Medical Society. Members of the society attended postgraduate courses not only in the immediate district, but also outside the state. Members took part in the Summer Round-up examinations, 4-H Club examinations, carried out immunization programs of school children, and cooperated with

various lay groups in tonsil clinics, in which the physicians donated the surgical care and the organizations furnished the necessary hospitalization.

We were disappointed in 1938 when a county hospital was voted down. In 1939, however, a special election was held to authorize the donation of a grade school building to the Palo Alto Hospital Association. The plan was favorably received, and the hospital association has employed an architect and awarded a contract for the necessary alterations. The new hospital will have a capacity of twenty-four beds. The physicians in the county are very much pleased at the prospect of having modern hospital facilities.

Harold L. Brereton, Deputy Councilor

Pocahontas County. One new physician located in the county in 1939, and one physician, not a member, moved from the county. Twelve scientific and business meetings were held, attended by 15 or 20 per cent of the members. Several physicians attended the postgraduate courses at Storm Lake and Algona.

We have a contract with the board of supervisors for medical care of the indigent. It is based on a fee schedule. The patient has free choice of physician, although when a home visit must be made, mileage is allowed only from the point of residence of the nearest physician. A committee from the society audits the bills and the plan works satisfactorily.

We had no public health program in the county in 1939. Our interprofessional organization is very active.

J. H. Hovenden, Deputy Councilor

Sioux County. The Sioux County Medical Society held four meetings during 1939, with guest speakers from Plymouth and Woodbury Counties. A dinner preceded two of the meetings, and a lunch followed the other two. Physicians from nearby counties were invited to attend.

Public Health Programs: The county society approved the home hygiene course outlined by the county nurse, held a tuberculosis clinic, approved the establishment of a Red Cross emergency station, and conducted an extensive immunization program in conjunction with the statewide smallpox vaccination campaign.

J. G. de Bey, Deputy Councilor

Fourth Councilor District

The reports from the deputy councilors of the fourth district show that the physicians are alert and aware of proposed legislation that may be inimical to the medical profession. They seem to be handling the indigent problem satisfactorily in the entire district.

James E. Reeder, Councilor

Buena Vista County. We had seventeen paid members in 1939, and one life member. We lost one member by death, and gained one who moved into the county. Two non-members have retired from active practice.

Medical Relief Set-up: We have a contract with the county board of supervisors based on a fee

schedule. This arrangement has been in force for several years. During the lean years we accepted a 20 per cent cut, but for the last three years have been paid the full amount. The plan has been very satisfactory and our relations with the board very pleasant. The patient is given free choice of physician, but is given a requisition for medical service by the county social worker. Bills are submitted to the auditing committee of three physicians each month, and this committee does excellent work in examining the bills. The physicians work together harmoniously.

Public Health Programs: We entered the statewide smallpox vaccination program and administered over 900 vaccinations. We also conducted four other immunization programs in the county during the year, including diphtheria and smallpox. We held no child health clinics. Two or three towns employ a school nurse for a period of time at the start of school, and again in the spring.

Humboldt, Pocahontas, and Buena Vista counties formed the Tri-County Interprofessional Association three years ago, but we held no meetings during 1939.

The county society maintains a supply of oxygen for its two resuscitators and its oxygen tent which are available to any doctor in the county. The equipment was donated to the society. One resuscitator is kept in the northern half of the county and one at the county seat. The oxygen tent is kept at the fire station in Storm Lake and is available to any physician any time of day or night. Several physicians made health talks during the year.

H. E. Farnsworth, Deputy Councilor

Carroll County. Medical Relief Set-up: We do not have a contract with the board of supervisors, but they allow \$2.25 per month for each family on relief. Patients are allowed free choice of physician, and the physician submits his bills on the basis of a fee schedule which is 60 per cent of the regular county fee schedule. Bills are audited by a committee from the county society, and then cut further by the county, although under the present arrangement they cannot be cut more than 40 per cent. The plan is not satisfactory.

We did not cooperate in the smallpox program, and had no other public health programs. Our interprofessional organization is not active.

W. L. McConkie, Deputy Councilor

Cherokee County. There are seventeen eligible physicians in Cherokee county, fifteen of whom are paid members of the county society. Meetings are held the second Tuesday of each month except during the summer, with a scientific program prepared. The average attendance consisted of ten members and four or five visitors from surrounding counties.

Medical relief for the indigent is controlled by the county board of supervisors and the relief agent, and is very unsatisfactory. We have tried to interest the board in a contract with us, but have been unsuccessful.

We cooperated in the statewide smallpox vaccina-

tion program, vaccinating 100 school and preschool children. We also cooperated with the different school systems in a diphtheria immunization program. Practically all of our school children are now immunized.

We have no interprofessional organization. There is an exceptionally fine spirit of fellowship and cooperation among the physicians in the county. Our regular monthly meetings contribute greatly to this spirit.

C. H. Johnson, Deputy Councillor

Crawford County. Medical Relief Set-up: Last year our society took care of the indigent in the county on an allowance of \$2.50 per month for each indigent family. This was authorized by the board of supervisors. We had a relief load of 200 families. Our auditing committee consists of three members who serve in rotation. This committee functioned well, but the amount allowed was so small that it hardly sufficed for the work.

The physicians vaccinated a number of persons during the year, but there was no other public health program. The interprofessional association has not made much headway, but we may meet with the dentists from time to time in 1940. We look forward to a more active year in 1940.

C. L. Sievers, Deputy Councillor

Ida County. Medical Relief Set-up: We have an informal agreement with the county board of supervisors to care for the indigent on a reduced county fee schedule. The patient has free choice of physician insofar as practicable, but the board reserves the right to select certain physicians, and also reserves the right to ask for a committee from the county society to audit bills if necessary. The plan is satisfactory and will be continued in 1940.

The entire membership of the society worked in the smallpox vaccination program, giving their services at a reduced fee. Our interprofessional organization is not functioning, and does not seem to arouse much interest.

E. S. Parker, Deputy Councillor

Monona County. Medical Relief Set-up: We have a contract with the board of supervisors for care of the indigent. The board allows us a lump sum of \$1,300.00 and we submit our bills on the basis of a fee schedule which is 50 per cent of the state minimum fee schedule. There are an estimated 200 families on relief in the county. They have free choice of physician. We have a committee to audit the bills, but the plan is not satisfactory to us.

We cooperated in the smallpox program, vaccinating 650 and immunizing 150 children. In addition we examine all school children once a year. We do not have an interprofessional organization.

E. C. Junger, Deputy Councillor

Plymouth County. Medical Relief Set-up: The present plan of medical relief has been in force since 1937. The county is divided into six districts, and the local physicians, seventeen in all, are under contract to provide usual medical care and furnish ordinary medicines for relief patients in their district.

X-ray examinations and surgery are provided by men in the districts where the two hospitals are located. Patients from other districts may also be referred to the hospitals for care. There are 450 families on relief in the county, of whom about 250 received some medical care in 1939. The contract calls for payment of \$6,400.00 to the county society, which is divided equally among doctors in each district regardless of the amount of work done. Payment amounts to approximately forty or fifty per cent of the usual fees. Patients must have an authorization for service except in cases of emergency; and are allowed free choice of physician in their district. The plan seems to be satisfactory to patients, physicians and the supervisors.

The county society conducted a smallpox vaccination program, vaccinating 883 persons, and an immunization program in which 728 persons were given toxoid. The work was done in the office of the family physician at specified times for a fifty cent fee. We worked also on the tuberculosis finding program, and conducted the usual summer round-up program for the schools in the county.

The annual meeting of the interprofessional organization was held in November in Le Mars, at which time Dr. Charles K. McCarthy of the State Department of Health addressed the group on the tuberculosis program. This association was organized three years ago. Meetings of the county society are held in conjunction with staff meetings of the Sacred Heart Hospital in Le Mars the first Tuesday of each month.

W. L. Downing, Deputy Councillor

Sac County. Medical Relief Set-up: The county medical society has a contract with the board of supervisors which is similar to those made in the past. It allows the physician fifty per cent of his usual fee for services, and one hundred per cent of the charge for drugs. An addition to the plan this year is an auditing committee. Membership on this committee is rotated among the members of the society. This committee audits all bills and determines that they are just and equitable. It has eliminated some friction between the physicians and supervisors, but the plan must depend for its success upon the willingness of the men in the profession to donate their services. The contract allows free choice of physician, and is considered satisfactory by the patients, physicians and supervisors.

We cooperated in the statewide smallpox vaccination program and felt the response was worthwhile. We do not have an interprofessional association, but invite the dental society to meet with us when the program is of interest to them. We participated in a "refresher" course in the fall, but did not feel the attendance was what it should have been considering the worth of the lectures. We held five meetings during the year, with a scientific program following dinner. The meetings were well attended.

J. R. Dewey, Deputy Councillor

Woodbury County. During 1939 the Woodbury County Medical Society held nine business and sci-

tific meetings and one social evening, the annual Christmas party. Approximately 85 members and guests attended each meeting. The ten meetings cost the society \$951.66.

A Public Relations Committee was created for the first time in 1939. Three doctors were appointed by the president to publicize, by authoritative press releases, the activities of the society, its out-of-town speakers, and its members who present papers to other societies.

Medical Relief Set-up: The county society signed a contract with the board of supervisors to render medical services to the indigent sick of Woodbury County. We agree to furnish a medical clinic, house visits by physicians, and medical and surgical care in hospitals. There were 26,384 visits made to the free clinic by 6,710 individual patients; and 6,414 house visits and 110 home deliveries made by members of our society. We receive 98 cents each month for every person, sick or well, who is on relief, to defray the medical expenses.

We have our own tuberculosis sanitarium, and our tuberculosis committee reviews all tuberculous indigent persons and refers them either to our sanitarium or to Oakdale, depending on the case. This policy has kept many of our chronic cases in the county and left more open beds at Oakdale for tuberculous patients who require more immediate and active treatment.

Public Health Programs: We cooperated in the statewide smallpox vaccination program. The president appointed a chairman who selected a committee to help him in the work. This committee arranged for two radio broadcasts, seventeen talks to Parent-Teacher Associations, and publicity through many press releases and editorials. As a result 567 persons were vaccinated by members of the county society.

The society authorized the clinic committee to take charge of the expenditure of FSA funds. The society voted to postpone indefinitely the establishment of a cancer clinic in Sioux City, as proposed by the American College of Surgeons. The Medical Economics Committee of the county society investigated the group hospitalization plan of the Associated Hospital Insurance Company of Sioux City. This company is chartered under the laws of Iowa. Its board of directors consists of two representatives from each of the four Sioux City hospitals, two members from the county medical society, and five laymen, making a total of fifteen. Its policy costs \$9.00 a year for individuals, \$18.00 a year for man and wife, and \$21.00 a year for man, wife and family. It provides hospitalization, and routine laboratory service to the amount of \$8.00, but electrocardiograms and basal metabolism tests are not included. The policy also allows x-ray service in emergency cases only, with a limit of \$15.00 for an individual in any one year. All other x-ray services must be paid for by the patient, although he is entitled to a 25 per cent discount from the regular fee schedule if he is hospitalized when he receives such service.

Pierce D. Knott, Deputy Councilor

Fifth Councilor District

Boone County. Medical Relief Set-up: We have a contract for medical care of the indigent with the county board of supervisors. The welfare office authorizes all medical service, allowing the patient free choice of physician provided he lives within the practice territory of that physician. The supervisors pay the physicians \$7,200.00 for their services. The plan works very satisfactorily.

Public Health Programs: We cooperated in the statewide smallpox vaccination program and vaccinated a very large percentage of the school children. We have not stressed the importance of the program for adults except as it has been done by the private physicians. For a number of years, the society has conducted a program of immunization against diphtheria, and the majority of school children have been protected, particularly in the urban districts. The program is being extended to the rural areas, and we hope to reach all rural schools within a year or two. The society has also made a concerted effort to control tuberculosis; school children have been tested and those with positive tests have been x-rayed; and all children suffering from tuberculosis have been excluded from school and placed under treatment.

The society meets with the Story County Medical Society regularly, presenting educational programs. The meetings are nearly always preceded by a dinner, with a resultant good fellowship which we think has been very beneficial.

J. O. Ganoë, Deputy Councilor.

Calhoun County. Medical Relief Set-up: We have a contract with the board of supervisors under which we are paid 50 per cent of the county fee schedule for medical care of persons authorized for such care by the overseer of the poor. The patient has choice of physician, but may not change physicians without permission from the one attending him. The county society appoints a committee which audits all bills and serves as an advisory committee on cases requiring special or prolonged treatment. The chairman of this committee serves for a year; the other members rotate their service. Approximately 300 families are on relief in the county. The plan works satisfactorily except that it entails a great deal of annoying work for the auditing committee.

Public Health Programs: We cooperated in the statewide smallpox program, vaccinating 454 children. We always cooperate in the work of the Nursing Committee. Other programs included a tuberculosis case-finding campaign, examinations of 4-H Club boys and girls, and periodic health examinations of Farm Bureau women at special fees. Our inter-professional organization is inactive. The county society has held several meetings which have been well attended. We believe the Woman's Auxiliary in our county has stimulated interest in the meetings of the medical society.

P. W. Van Metre, Deputy Councilor

Dallas County. Medical Relief Set-up: The relief office authorizes all calls for medical service rendered to indigents, allowing the patient free choice of phy-

sician. Fees are based upon a fee schedule adopted by the county society in 1935; the bills are audited by a physician, and are paid by the supervisors as audited. Medical care was given to 319 families during 1939, and the plan worked satisfactorily.

The entire county was covered in the smallpox vaccination campaign, and persons of all ages were vaccinated. Some communities reduced the fee for the service to 25 cents, thus attracting more patients. Members of the society donated their services to give examinations to 4-H Club boys and girls. No other health programs were conducted. We do not have an interprofessional organization.

E. J. Butterfield, Deputy Councilor

Greene County. Medical Relief Set-up: We have a contract with the board of supervisors to give medical service to the 110 families who are eligible. For this the board paid the county society \$4,500.00 in 1939 and will pay \$5,100.00 in 1940. Patients procure a slip from the welfare worker authorizing medical care and take it to the physician of their choice. This slip is good for one month's services only, and must be renewed if medical care is still necessary. Bills are submitted monthly but are not audited by the county society. Payment is prorated, because the funds are never sufficient to pay the bills in full. The plan is fairly satisfactory.

The county society vaccinated 158 persons and inoculated 120 during the statewide smallpox program. The society also conducted its annual summer round-up to examine, vaccinate and immunize all preschool children. We do not have an interprofessional organization. The county society holds regular monthly meetings at which time scientific programs are presented by guest speakers. In addition to these meetings, we have a Study Club which meets twice a month. A paper prepared by a practicing physician is presented at each meeting of this group.

O. C. Lohr, Deputy Councilor

Guthrie County. We have a contract with the board of supervisors for care of the indigent which is satisfactory. We carried on a program of vaccination and immunization during the year, but participated in no other health program. Regular meetings of the Dallas-Guthrie Medical Society had an average attendance of 28 physicians. One new physician located in the county and joined the county society. We had no postgraduate course, and we have no interprofessional organization.

S. J. Brown, Deputy Councilor

Hamilton County. One new physician located in Hamilton County during 1939, becoming a member of the county society; one non-member renewed his membership; and one physician moved from the county. Meetings were held quarterly upon call by the president. No scientific programs were presented.

We have a contract with the county board of supervisors for care of the indigent. It is based upon a fee schedule. The plan is similar to the IERA plan of 1935, and follows closely that in effect in Wright County. We have found it a satisfactory method of taking care of indigent persons, and both the super-

visors and physicians prefer it to any other that has been tried. One member of the county society serves as doctor for the county home. He is chosen by the county society and approved by the supervisors and the steward of the home. A committee of physicians works with the county nurse, and another committee acts as an advisory body on medical affairs for the county.

We vaccinated 770 children in the statewide smallpox program, and are now making plans for a tuberculosis case-finding program.

M. B. Galloway, Deputy Councilor

Polk County. Medical Relief Set-up: The board of supervisors has not yet seen fit to enter into a contract with the society for medical care of indigents in the county. The board employs four members of our society as county physicians, so-called, whose duty it is to provide medical service in the homes and institutions for which the supervisors are responsible. Physicians in rural Polk County give care to the indigent, upon authorization, on the basis of a fee schedule. A contract with the county hospital for both institutional and home medical care has been considered, but certain legal responsibilities will not permit such an arrangement at this time. During the year a tumor clinic was established at Broadlawns Hospital. This clinic provides diagnostic service for all patients who come or are referred to it, and furnishes necessary surgical, x-ray and radium treatment to those who are eligible under the county hospital social service regulations. So far 19 clinics have been held and 59 patients examined. A home obstetric service was also established at Broadlawns Hospital last fall through the cooperation of the hospital, the State Department of Health, the University of Iowa College of Medicine, the Polk County Medical Society and other interested voluntary and governmental agencies. This service provides home delivery service for those who are eligible according to the hospital social service regulations. Christmas Seal Clinics rendered service to 224 patients during 1939. These clinics were established to give diagnostic service to residents of the county who are not eligible at the county hospital but who are unable to pay standard fees. The clinics are held under the auspices of the county society. The Commitment Board, which was established by the society to examine applicants for commitment to the University Hospital at Iowa City, examined 857 patients and committed 447 of this number. No person who was eligible was refused medical care either at Iowa City or at local institutions. The Health Center which is supported by the Community Chest rendered free or part pay care to 4,382 patients during the year. Service is available to the medically indigent and is limited to general physical examinations, pediatrics, health supervision, refractions and dental care. Attendance at these clinics showed an eleven per cent increase over that for 1938. A new service was the pediatric care of children between two and five years of age. A visiting staff of approximately 75 members of the society rendered gratuitous service to patients confined at Broadlawns County Hospital or admitted to

the twenty-three clinics in the out-patient service. It is very conservatively estimated that the value of medical service, computed on the basis of \$2.00 for each hospital-patient day, was \$211,000.00. In addition to the above mentioned services, medical relief was made available to residents of the county on various bases at the private hospitals, the Salvation Army hospital, the Benedict home, the Junior League Convalescent Home, and the Maternal Health League.

Public Health Programs: During the 1939 summer round-up campaign 398 preschool children were examined. The annual diphtheria immunization campaign was coordinated with the statewide smallpox vaccination program; 1,427 children were immunized and 1,344 vaccinated. Although private physicians cooperated in this activity, the large majority of children were treated by public health agencies. The Polk County Health Unit has been of distinct service to the rural areas of the county, to which its work is confined. Physicians examined 1,948 well babies at the Well Baby clinics conducted by the Public Health Nursing Association. Members of our society are employed for these clinics.

Other Activities: During the year the Medicodental Bureau collected approximately \$6,100.00. This bureau was established by the society in 1935 to extend credit without interest to regularly employed people in this community for hospital, medical and dental bills which had been adjusted to a fee commensurate with their ability to pay. Approximately \$2,600.00 of the amount collected was paid to the 62 physicians who had patients enrolled in the bureau during the year, and approximately \$3,300.00 to the hospitals of the community. It is of interest to note that of the Medicodental Bureau cases a year or more old, fifty per cent have been paid, twenty per cent have been referred to the Medical Business Bureau for personal collection service or are on relief, and the other thirty per cent are paying their accounts. The Medical Business Bureau, which operates under control of the Medicodental Bureau, collected \$30,000.00 for hospital, medical and dental bills in 1939 as compared to \$25,000.00 in 1938.

Public Relations: A Health Council, sponsored by the Community Chest, was established in 1939. It includes representatives from all agencies providing health service. The Polk County Medical Society is well represented on this Council, both by direct delegation and through the various agencies which appoint doctors to the Council. It provides an excellent forum for discussion of health and medical subjects with lay people. Our Public Relations Committee has been unusually active this year in presenting to the public the value of American medicine as opposed to socialized medicine.

Activities of the executive office maintained by the society have increased and expanded in keeping with demands of the membership, the public, and committee activities. Polk County does not have an active interprofessional organization.

J. A. Downing, Deputy Councilor

Story County. Medical Relief Set-up: Our contract with the board of supervisors for care of the indigent

is based on a lump sum payment of \$4,711.00 from the board and \$554.00 from the soldiers' relief fund, making a total for the year of \$5,265.00. This money covers the medical work given by physicians to approximately 200 families. Patients have free choice of physician. A committee of physicians acts in an advisory capacity with the board on questions which may arise. The money is paid to the county society, and is used to pay membership fees for all members, individual subscriptions to the Journal of the American Medical Association for each member, and the expenses of postgraduate courses held in conjunction with the Boone County Medical Society. The balance of the money, after the above items are paid, is divided among the members of the society. We feel that this plan has worked for the betterment of the profession in our community; it has made possible some excellent postgraduate courses; and it has led to better fellowship among the physicians.

We did not join the statewide smallpox program, but continued with our own campaign of vaccination and immunization. We have no interprofessional organization.

Bush Houston, Deputy Councilor.

Webster County. Medical Relief Set-up: Our county medical society will take care of the indigent under a new plan in 1940, and it, rather than the old plan, will be described. We have a contract with the county board of supervisors under which the county medical society is to receive \$2,000.00 each month. For this amount, the society agrees to establish and maintain a clinic for the care of relief patients. The space for the clinic is to be provided by the board of supervisors, who also pay for light, heat, telephone service, janitor service, and redecoration twice a year. The society elected Dr. L. L. Leighton director of the clinic. Operation of the plan started January 1, 1940, and is proving to be as satisfactory as such an undertaking can be. All calls are made through the clinic office, but each family may have its family physician. All drugs are dispensed at the clinic or by prescription to local druggists. Special clinics are conducted in the morning, covering prenatal care, gynecology, heart and chest, diabetes, anemia, genito-urinary conditions, orthopedics, eye, ear, nose and throat, and pediatrics. General clinics are held in the afternoon, and a venereal disease clinic is held in the evening. All physicians have specified hours for rendering the service of their choice. The plan also provides for consultation service. No patient is admitted to a hospital until a consultation has proved it to be necessary.

We cooperated in the statewide smallpox program, including immunization in our campaign. Our interprofessional organization is not active. We lost two physicians during the year, one by removal and one by death, and gained two.

L. L. Leighton, Deputy Councilor

Sixth Councilor District

Benton County. We hold two meetings a year to transact the business of the society, and our members attend scientific programs in Linn and Black

Hawk counties. We have twenty-four physicians in the county, of whom twenty belong to the county society. We do not have a county public health program, but cooperated in the statewide smallpox vaccination campaign, with very poor response from the public.

Medical Relief Set-up: We have a contract with the board of supervisors for care of the indigent in the county. The doctors in Belle Plaine sign one contract and those at Vinton sign another, and the balance of the relief work in the county is handled by doctors not in these two groups who submit bills for services rendered. The two contracts call for a payment of \$2,100 a year to both groups to cover medical care of the paupers, persons on work relief and those receiving old age pensions. A payment of \$5.00 is also allowed for obstetric cases, and when surgical cases cannot be sent to Iowa City, they are cared for at home for one-half the minimum fee. There are approximately 300 families on relief, and the plan is working satisfactorily.

G. W. Yavorsky, Deputy Councilor

Black Hawk County. Medical Relief Set-up: We have a contract with the board of supervisors to care for the indigent sick on a fee schedule basis. There are 540 families in this class. Three or four physicians serve each month, and so the patient does not have free choice of physician, but must accept one of those on the panel for the month. We have an auditing committee.

We had sixty-three members in good standing in 1939; we gained five new members and lost four by death. We held eight scientific meetings which were well attended, and also had five business meetings. We cooperated in the statewide smallpox vaccination campaign, vaccinating 1,072 persons and immunizing 732.

We have an interprofessional association, although it is not very active. However, we feel it will function when there is a need for it.

M. J. Joynt, Deputy Councilor

Grundy County. We do not have a contract with the board of supervisors, but only an agreement under which we care for the indigent in the county on a fee schedule which is 75 per cent of the usual fee schedule. We have 115 families in the county on relief; they are allowed free choice of physician. We do not have an auditing committee, but the plan works satisfactorily.

Our society was inactive during the year, with no meetings held, and no public health work done.

R. T. Spain, Deputy Councilor

Hardin County. Medical Relief Set-up: We have a contract with the county board of supervisors for care of the indigent in the county. In 1939 the amount paid us was \$4,000.00, and in 1940 it will be \$4,250.00. It is interesting to note that our first contract was made in 1904 for a sum of \$800.00. The work has steadily increased during the years, until now we care for 400 families. The patient has free choice of physician, and we have an auditing committee. We feel the plan works very satisfactorily.

We do not have a county public health program, although we cooperated in the smallpox vaccination program in the fall. We have no interprofessional organization. We had twenty-six physicians in active practice in the county, all of whom were members of the county medical society.

W. E. Marsh, Secretary

Iowa County. Medical Relief Set-up: We do not have a contract with the board of supervisors for care of the indigent, but we have an agreement to do the work for 50 per cent of the regular fee schedule. We have approximately 176 families in the county and they are given free choice of physician. We do not have an auditing committee. We conducted tests for tuberculosis in the schools, but did not sponsor the smallpox vaccination campaign because we had offered a similar campaign to the county last year. We held one meeting during the year, and members of the society attended scientific programs in Linn County.

I. J. Sinn, Deputy Councilor

Jasper County. Medical Relief Set-up: We have a contract with the board of supervisors for care of the indigent on a fee schedule which is fifty per cent of the standard schedule. Patients have free choice of physician. We appoint a committee of three physicians who audit all bills and advise the board of supervisors with regard to payment. We also appoint a committee which acts in an advisory capacity in cases requiring hospitalization, surgery, the treatment of non-infectious venereal diseases, and prolonged cases requiring special treatment. The contract and committee set-up, which has been in operation for the past seven years, has proved to be highly satisfactory to the patient, the board of supervisors and the county medical society.

During the year we held regular monthly meetings at the Skiff Memorial Hospital, opening with a dinner and concluding with a scientific program. We were rewarded during the year by having the hospital placed on the approved list of the American Medical Association.

We took an active part in the statewide smallpox vaccination program, appropriating \$40.00 for newspaper advertising of the campaign. In addition to the number of persons vaccinated by their family physician, 898 were vaccinated by the county society as a whole. Our diphtheria immunization program resulted in the protection of 851 children. Child health clinics in which tuberculin tests were included, were held for all preschool children. Fifty 4-H Club boys and girls were also examined at this health clinic. The county society received excellent assistance in this work from the county nurse, the school nurse and the 4-H Club supervisor.

Our interprofessional organization continued to function during the year. In addition to its other activities, the organization holds a yearly banquet at the Hotel Maytag.

Harry P. Engle, Deputy Councilor

Marshall County. Medical Relief Set-up: We have a contract with the county board of supervisors for

care of the indigent on a fee schedule which is approximately fifty per cent of the state fee schedule. All bills are audited by the society each month, and disbursements are made to physicians on the basis of work done, with a certain percentage deducted for county society expenses.

We conducted a campaign against smallpox and diphtheria under the supervision of the city health physician. We also contributed talks to various organizations on health subjects.

We had forty-five members at the start of 1939, but lost two by removal during the year. All eligible physicians in the county are members of the society. During the year we held monthly meetings with a program arranged by the Speakers Bureau. These were well attended and we had guests from neighboring counties in addition to our own members.

Rodney C. Wells, Secretary

Poweshiek County. We continued our care of the indigent under a contract with the board of supervisors which is renewed annually. The plan operates on a fee schedule with an auditing committee to inspect all accounts approved by the welfare officer. Physicians have the right of appeal to this committee when their bills have been rejected. The committee also has the power to reduce bills which seem excessive. The patient is allowed free choice of physician, but must obtain an authorization from the welfare officer for service. The plan has been in operation ten years, and has worked very well. Relations between the physicians and supervisors are harmonious. Seven hundred and three families were cared for during the year.

We had no public health program of our own, but cooperated in the smallpox vaccination campaign, vaccinating 900 persons at a reduced fee of fifty cents. We also cooperated in the tuberculosis program, and we held a special meeting devoted to a discussion of pneumonia. Five regular and two special meetings were held during the year. Membership in the county and state society is 100 per cent. Our interprofessional organization is not active, but will be available when needed.

C. E. Harris, Secretary

Tama County. We had twenty active and three retired members of the society in 1939, and we gained three who located in the county during the year. Meetings were held monthly, with an average attendance of fifteen. The interest shown was very good.

Medical Relief Set-up: We had a contract with the board of supervisors to care for the indigent for \$5,000.00, payable in quarterly installments. For 1940 the figure has been raised to \$5,800.00. For this sum the county society cared for 152 medical relief patients, and those who were on WPA and in the county home and jail, giving them ordinary medical attendance, medicines and minor surgery. Major surgery, serums and hospital care were not included in the contract. The bills were audited by a committee, and paid on a prorated basis every three months. The average was 70 per cent pay-

ment of bills submitted. The plan was fairly satisfactory, although some physicians had a tendency to pad their bills.

We cooperated in the smallpox program, vaccinating 949 persons. We also immunized 245 persons. We have no interprofessional organization. We tried to organize one, but the other groups were not interested.

We plan to have our own members prepare papers for 1940 meetings, with occasional talks by outside speakers. By making our own members do more of the actual work, we hope to increase interest in the county society.

A. A. Pace, Deputy Councilor

Seventh Councilor District

The appended reports of the deputy councilors of the seventh district indicate that each of the county societies enjoyed active progress during the year. The care of the indigent and medical relief patients throughout this district was satisfactorily handled, being based in most instances on contracts with the boards of supervisors. It is apparent that this plan is best, especially when based on a fee schedule that is satisfactory to the medical society, since it provides free choice of physician for the patient and a satisfactory fee for the physician.

The public health program of smallpox vaccination planned by the State Society was followed. Many Schick tests were given as a follow-up of the previous year's diphtheria immunization program.

We have interprofessional organizations in nearly every county of the district, but they are not active. I believe all of the five professions would be benefited by more active organizations.

Several of the county cancer chairmen met in Dubuque in November and formulated plans for the coming year.

The seventh district had a very good record in the past year. The membership of each county society showed a healthy growth in new members which would indicate an active interest in the work of the different societies. I wish to express my appreciation of the splendid cooperation of the officers of the several county societies and especially of the deputy councilors who have greatly aided me and have made the interest and progress of the profession possible.

H. A. Householder, Councilor

Buchanan County. We followed the same medical relief plan as we did last year, and it proved satisfactory. We have a contract with the supervisors on a fee schedule basis, with the patient being allowed free choice of physician. The fee schedule was determined by agreement between the supervisors and the county medical society.

We cooperated in the statewide smallpox program. A report from the Independence schools shows that 475 out of 789 pupils were vaccinated, and 25 contracted smallpox. We also gave 189 Schick tests. Of the 789 pupils, 584 were immunized against diphtheria.

We have no interprofessional organization. The county medical society meets four times a year, and the Peoples' Hospital holds staff meetings about eight times a year.

C. W. Tidball, Deputy Councilor

Cedar County. We have no contract for medical care of the indigents of Cedar County, although the board of supervisors contracts for medical care of inmates of the county home and the jail. The individual physicians serve the indigent, and turn in their bills which are then paid without question. We have no auditing committee.

We cooperated in the statewide smallpox vaccination program, and also immunized many children, although the exact number is not available. We also cooperated in a survey of tuberculosis contacts in the county. The county society met once during the year, and members attended meetings in nearby counties. We have no interprofessional organization.

E. J. Van Metre, Deputy Councilor

Clinton County. Medical Relief Set-up: Our contract with the board of supervisors expired May 1, 1939, and was not renewed. Under it the Clinton County Medical Society received \$13,000.00 per year for the care of the indigent, old age assistance patients, and WPA workers, with a total case load of 616 families. Of these, 394 were termed families on relief; the other 192 families fell into the groups of old age assistance patients or WPA patients. We asked to be paid \$16,000.00 for the work in 1939-1940, but the relief worker convinced the board of supervisors that she could administer the medical care more cheaply than we could, and we did not receive a contract. Under her supervision the work for the six months just elapsed cost \$6,215.05 for doctors' fees and \$383.79 for clinical pay patients. The sum paid the doctors was only \$284.95 less than would have been paid them under the old contract. The interesting feature, however, is that the quota allotted for the entire year was used in this six months, plus an excess of 10 per cent.

Public Health Programs: We vaccinated 1,463 children against smallpox and immunized 1,198 against diphtheria in the statewide smallpox campaign. We cooperated with the State Department of Health in enlarging the scope of the venereal disease clinic, and we worked with the county tuberculosis unit. Next year we plan to conduct tests for tuberculosis in high school students.

No meetings of the interprofessional association were held during the year. The county society held four scientific meetings during the year, and six business meetings. Many of our members attend programs in adjacent counties, and that reduces the necessity for our having more meetings.

Ralph F. Luse, Deputy Councilor

Delaware County. Our society held three meetings during the year. Twelve of the twenty-two physicians in the county are members.

Medically indigent persons are cared for under a fee schedule arranged with the board of super-

visors. During 1939 we had 237 families on relief, with a total expense for medical and hospital bills of approximately \$11,000.00. We receive no state aid for this. This arrangement has been satisfactory in the past, but the board of supervisors has requested bids for care of the indigent in 1940.

We vaccinated 315 persons for smallpox and immunized 270 against diphtheria. However, only about 35 per cent of our public school children have been immunized. We also cooperated with the State Department of Health in its tuberculosis survey, finding ten positive cases in 91 suspected cases which were x-rayed.

Our interprofessional organization is not functioning. The county society met in November, 1939, to discuss the establishment of a hospital, and a committee was appointed to draft and circulate the necessary petitions.

J. I. Jones, Deputy Councilor

Dubuque County. The members of the Dubuque County Medical Society feel we have a satisfactory medical relief set-up in operation. We have a contract with the board of supervisors based upon a fee schedule. Between 900 and 1,100 families are cared for, with the patient having free choice of physician. We do not feel an auditing committee is necessary with our system. We appoint a director who has supervision of all applications for medical, surgical or hospital care of indigents. No physician may receive compensation for services unless the director has approved it, and all medical, surgical, drug and hospital bills must have his approval before they can be honored by the supervisors. We also appoint an executive committee to assist the director in making decisions in serious situations. The satisfactory operation of this plan depends largely upon the type of physician chosen to fill the position of director, and upon the degree of cooperation of the individual physicians in the society.

We gave full cooperation in the statewide smallpox vaccination program, and conducted a diphtheria immunization campaign. We also cooperated with the Dubuque Visiting Nurse Association and the County Tuberculosis Committee in furthering the tuberculosis case finding program, and approved a plan of the county nurse to give a series of prenatal lectures throughout the county.

Our interprofessional organization is active. Two excellent meetings were held during 1939, and a permanent foundation fund was established by the society during the year. The money derived from the investment of this fund will be used for the advancement of medical science. Meetings were held regularly and excellent programs were offered. They were well attended.

J. Carl Painter, Deputy Councilor

Jackson County. Medical Relief Set-up: We have no contract with the board of supervisors, but have a gentlemen's agreement that they will pay us 25 per cent of the usual fee schedule for our service to the indigent. Three physicians appointed by the county society audit the bills, and they are then paid by the board in full as presented. We have approximately

300 families on relief. They are supposed to have free choice of physician, but not all of them know this, and there is some abuse of the plan. It is a modification of the IERA plan, and works fairly satisfactorily.

The county society cooperated in the statewide smallpox program, vaccinating 640 patients. We participated in no other public health program, and we do not have an interprofessional association.

George C. Ryan, Deputy Councilor

Johnson County. Medical Relief Set-up: We have a contract with the county board of supervisors, based upon a flat rate of \$2.40 per month for each indigent family. We care for approximately five hundred families each year. They have free choice of physician. The contract is an agreement between the board of supervisors and the practicing physicians of the county. A director of medical relief, a physician, is appointed, and the physicians submit their bills to him monthly. The bills are based on a fee schedule which is between one-quarter and one-half the normal rate. The auditing committee examines the bills, and prorates the sum received from the supervisors. During the past year, the bills allowed were paid in full because of careful pruning on the part of the medical director. The plan works satisfactorily.

The physicians in Johnson county cooperated in the statewide smallpox vaccination program. We do not have a public health program for the society, although individual physicians do some public health work.

We have a skeleton interprofessional organization, but it is not functioning.

The report of membership which follows is the work of the secretary, Dr. Robert J. Prentiss, and all credit for it is due him. We have two life members, 121 active or associate members, 21 non-resident, three affiliate, 77 junior and five unclassified members, making a total of 229, as compared to 193 in 1938. A record of attendance at the meetings is interesting. It shows that thirteen members attended all meetings of the society and sixteen attended all but one meeting. There were only ten physicians who did not attend a single meeting, and only three who came to just one meeting. Of the eight scientific programs presented, five were prepared by members of our own society, and three by out-of-town speakers. Several features of the society's activities give us much pride and satisfaction; first, the excellent attendance and interest of the younger men, particularly those associated with the College of Medicine; second, the general excellence of the programs, with particular emphasis upon the participation of our own members; third, the healthy growth in membership and interest during the year; and fourth, the large number of non-resident members who wish to maintain their connection with the society.

George C. Albright, Deputy Councilor

Jones County. There was no change in membership in the county society during the year. Our medical relief plan is modified from the IERA plan

of 1935. Three physicians of the society meet with the board of supervisors monthly and audit the bills presented by the physicians.

We cooperated in the smallpox vaccination program. In our county, the Red Cross and Parent-Teacher Association paid for vaccinating those in the low income group, and the supervisors paid for the vaccination of indigents. We hold a tonsil clinic yearly, at which time the supervisors and the different clubs of the county help defray the expenses of fifteen or twenty tonsillectomies.

We have no interprofessional organization, and our only society meeting held during the year was for election of officers. We attend programs in Linn county.

T. M. Redmond, Deputy Councilor

Linn County. We had 101 active members in 1939, and in addition had 24 non-resident members, ten junior members, and three life members. We lost two physicians by death during the year. Our meetings were well attended, and our speakers were secured from all parts of the country.

Medical Relief Set-up: We have a contract with the board of supervisors under which the society is paid \$3,200.00 each month. At the end of the year any unused funds are returned to the county treasurer. In 1939 this amounted to \$2,696.00. The medical society withholds one month's allowance as a reserve to take care of possible epidemics. The fee schedule is determined each month by the medical relief director. This director is guided by a board of six members of the county society; these six members are appointed by the executive committee of the county society, so that final control rests in the county society. Patients are not allowed free choice of physician except in some instances. Ambulatory patients are cared for in a clinic, accepting the services of the physicians on duty. Other work is divided as equitably as possible, taking into consideration the type of illness and the physician best fitted to care for it. The average number of families on relief during the year was 690 each month. Physicians' bills are audited by the director of the medical relief work. The operation of the plan has been adjusted so that very few complaints are made, by either patients or physicians.

The county society cooperated in the smallpox program, but in spite of a preliminary advertising campaign in the county newspapers at the expense of the society, very few children were vaccinated. The medical relief organization vaccinated 125 children, and private physicians possibly a few more. The number of diphtheria immunizations was negligible. The society has a public welfare committee which cooperates closely with the public welfare bureau of the Cedar Rapids Chamber of Commerce. We have no interprofessional association.

B. F. Wolverton, Deputy Councilor

Eighth Councilor District

From the full reports submitted by the deputy councilors, it will be noted that each county in the district has some financial arrangement with the

board of supervisors for the care of the indigent. In one or two instances the arrangement is not fully satisfactory because the fees are too low, but it is probable that after a year or two these may be adjusted satisfactorily. In addition to the work which has already been done, there are two other avenues of usefulness along which all county societies should take an active part. The first of these is cancer control. We all know that for many years, cancer education in this part of the state has been done by quacks, and it is time for the medical profession to take an active hand in proper education. We have the opportunity through the Women's Field Army. Every county should have an active woman lieutenant to represent the public, and an active member of the society to represent the physicians. I firmly believe this educational work should be carried on under the control and advice of the county society.

The second avenue is in tuberculosis work. The Iowa Tuberculosis Association has carried out a remarkable educational program in the last quarter of a century. The physicians should take an active part in the sale of Christmas seals and certainly should supervise the spending of the money in the county along the lines of proper education and case finding.

C. A. Boice, Councilor

Des Moines County. The Des Moines County Medical Society held eight regular and five special meetings during the year, with scientific programs presented by guest speakers at all regular meetings. We lost three members of the society by death. Our medical relief program was the same as it has been in past years. We have a contract with the board of supervisors based on a lump sum payment, and it has been satisfactory to the relief agency and the medical society. We have a county health unit which functions very satisfactorily. The county medical society and the county health unit cooperated in the statewide smallpox vaccination program, caring for 1,800 children. We have an interprofessional society which did not function during the past year.

G. D. Jenkins, Deputy Councilor

Henry County. Our medical relief work is conducted on a fee schedule which is 70 per cent of the state fee schedule. Approximately 100 families are cared for on this basis. The plan allows the patient free choice of physician, and works fairly satisfactorily. We vaccinated 200 children in the statewide smallpox vaccination campaign. The county society met regularly each month from September to June, with a good attendance.

S. W. Huston, Deputy Councilor

Jefferson County. Our county society meets every other month, but in addition to these meetings, we attend the staff meeting on the first Monday of each month at the Jefferson County Hospital at which time interesting case histories of the previous month are reviewed. The society recently purchased a moving picture projector with sound attachment so that we may take advantage of the many scientific films which are available for our meetings.

Medical Relief Set-up: We have a contract with the board of supervisors for care of the indigent similar to the one we have had for years. The service is rotated, each physician serving a month. The patient must be given an authorization for medical care by the relief worker. Fees are 50 per cent of the regular county fee schedule. We cared for 505 families during 1939, and the plan was satisfactory both to the medical society and the supervisors.

We vaccinated 300 children in the statewide smallpox vaccination program.

We have fifteen members, including one life member, in our society. There are also two eligible non-member physicians in the county, one ineligible non-member, and one retired from practice. We lost one physician by removal and one by death, and gained one during the year.

Ira N. Crow, Deputy Councilor

Upper Lee County. Medical Relief Set-up: We have a contract with the county board of supervisors for care of the indigent. It is based on a fee schedule which pays one-third of the regular fees for surgery, and one-half the regular fees for ordinary medical care. The patient does not have free choice of physician, and we have no auditing committee, but the plan is very satisfactory.

Public Health Programs: We cooperated in the statewide smallpox vaccination program. Our local program consists of examination and immunization of preschool children, and examination of all high school freshmen.

Our interprofessional association is not functioning.

R. L. Feightner, Deputy Councilor

Lower Lee County. We do not have an organized medical society in Keokuk, but we hold staff meetings each month at both the Graham and St. Joseph Hospitals. Two physicians present some problem or case history at these meetings, and all those present enter the discussion. Average attendance at these staff meetings was 85 per cent of the members during 1939.

I believe the indigent are receiving satisfactory medical service in our part of the county. I believe, however, that we should hold quarterly meetings in Keokuk to discuss the problems of organized medicine, because too many of the general practitioners do not understand even the fundamentals of the problem.

G. H. Ashline, Deputy Councilor

Louisa County. We had one hundred per cent membership in the state and county societies during 1939, with the nine active members paid in full. We have one retired physician. We held eight meetings during the year.

Medical Relief Set-up: We have no signed contract with the supervisors, but we have an understanding with them that 50 per cent of the regular fee will be paid for service that has been authorized in advance. Patients have the right to select their own physician. The plan has been more satisfactory than any other we have tried.

We conducted a program of vaccination and immunization of preschool and school children in conjunction with the statewide program, and also cooperated in the tuberculosis program of the State Department of Health. Our interprofessional organization did not survive.

J. H. Chittum, Deputy Councilor

Muscatine County. We had twenty-four members in our county society, and held nine meetings of the society during 1939.

Medical Relief Set-up: We have a contract with the county board of supervisors based on a fee schedule. The patient has free choice of physician. The plan works fairly smoothly, but the cut made on bills is too high at times. We feel the physician is entitled to 50 per cent of the usual fees for his care of indigent patients, and we do not always receive that.

A venereal disease clinic was established and is functioning very well. During the year the society also experimented with providing care for FSA clients on an insurance plan. The results of that experiment will be reported later.

All members of the county society cooperated with the health and welfare boards in the county. We experienced an unusual smallpox epidemic during the winter, due to the fact that a few years ago Norman Baker convinced many people that vaccination was unnecessary. Our records show that 3,117 persons were vaccinated, and we know that the figure should be even larger, because some were not reported. There are still between two and three hundred school children not yet vaccinated.

We do not have an interprofessional organization.

T. F. Beveridge, Deputy Councilor

Scott County. Medical Relief Set-up: We have a contract with the county board of supervisors which provides for the payment of \$2.00 per month per family on relief. This does not include old age assistance cases, for which payment is made only when the patient is ill. The rate for such care is also \$2.00 per month.

The physicians submit bills in accord with a fee schedule, a committee of physicians audits them, and the bills are then prorated. It has been sufficient to cover the charges in only one month. There are between 900 and 1,000 families on medical relief. They are allowed free choice of physician, except in cases of venereal disease, when they are treated at the venereal disease clinic. Some of the doctors are satisfied with the plan; others feel that the compensation is inadequate and that the plan does not make the best use of the available money either from the patients' or the physicians' standpoint. Many of the patients feel that they received better care under the old plan which was in effect from 1930 to 1937.

Public Health Programs: We cooperated in the statewide smallpox vaccination program. The superintendent of the Davenport schools was kind enough to have a special blank mimeographed for use in the public schools, and we had to pay only for

the blanks used in the parochial and county schools. Our cost for the program was \$5.10. We vaccinated 660 children in Davenport and immunized 328. The fee was ten cents, and our total receipts were \$41.60, so that after deducting our expenses we had a net profit of \$36.50 to turn over to the treasurer. This is the only activity of the county society which does not cost us money.

In addition to this program, we held monthly immunization clinics in the Visiting Nurses' Clinic in cooperation with the City Board of Health and the State Department of Health. During 1939 we gave 1,508 smallpox vaccinations and 1,291 diphtheria immunizations. We also designated physicians to work with the Visiting Nurses' Association in pediatric, prenatal, tuberculosis, skin, and oral sepsis clinics. The clinics are held once or twice a week, and have an average of 130 to 150 patients.

We have an interprofessional association which is inactive at present.

L. A. Block, Deputy Councilor

Van Buren County. Our meetings during 1939 were devoted primarily to business matters. We had no change in membership during the year. Medical relief is based on the IERA plan, and some state funds are necessary, because the county is unable to pay its bills. The allowance per family was reduced from \$2.50 to \$2.00 per month, and this 20 per cent cut makes it impossible for us to receive full payment. However, in spite of that fact, the plan works fairly well, and the physicians seem to understand it. The patients are given authorizations for service. Bills are submitted by physicians each month, and are audited by a committee of three physicians before being given to the supervisors for payment. We like this feature, because it gives us an insight into the scope of the work.

The smallpox campaign was a failure, and we had no other public health program. We have no interprofessional association.

C. R. Russell, Deputy Councilor

Washington County. The Washington County Medical Society held nine regular meetings during 1939. The September meeting always consists of a banquet to which wives and guests are invited, and has proved to be very popular. The attendance at meetings averaged 85 per cent, and membership in the State Society is 100 per cent as it has been for many years. The society purchased a 16 millimeter sound projector during the year, and it will be valuable in enlarging the scope of our programs in the future.

We have a contract with the board of supervisors for care of the indigent which has proved very satisfactory to the board, the society, the patients and the welfare office. After all expenses of the society are paid, the balance is prorated to the members according to the work they have done.

Public Health Programs: The county society has been active in public health work for many years, and since the establishment of the county health unit in 1936 has cooperated with the unit in many ways

to improve the health of the community. In 1939 the work included a smallpox vaccination and diphtheria immunization program, during which 1,200 children were vaccinated and 300 immunized. In addition to reporting ordinary communicable diseases, the society approved a program in which cases of syphilis are reported to the health unit, and indigent syphilitic patients are treated by private practitioners, the payment for this coming from the health department's budget. The society also approved an educational program which gave the health unit permission to make blood tests of groups requesting this service. The society cooperated in a tuberculosis case finding program, and urged participation in a pneumonia control program. We understand that in proportion to its population, Washington county has probably typed and treated as many cases of pneumonia as any county in the state. The physicians cooperated for the third year in the maternity demonstration program of the health unit, and were active in assisting in examinations of preschool children and 4-H Club members.

E. E. Stutsman, Deputy Councilor

Ninth Councilor District

There have been no unusual developments in the ninth councilor district during the past year. New physicians locating in the various counties have joined their respective societies at the earliest possible date. The deputy councilors have been zealous in the performance of their duties and have accepted their responsibilities cheerfully. With the annual meeting this spring the councilor will have completed his ninth year of service and will turn over the responsibilities to his successor with the realization that, while many things have been accomplished, much yet remains to be done. In closing the report, I wish to express my appreciation of the efficient manner in which the deputy councilors have performed their duties through these years. Without their hearty cooperation my duties could not have been performed.

H. A. Spilman, Councilor

Appanoose County. We held three meetings during the year, all of which were well attended. Our medical relief work is carried on under the old IERA plan. We vaccinated 209 persons and immunized 38 in the statewide program. The number immunized was small because many of the children had been immunized in 1938.

C. S. Hickman, Deputy Councilor

Davis County. We have a contract with the board of supervisors for care of the indigent in Davis county which we feel is satisfactory. The patient has free choice of physician. The physician receives a certain fee for office visits, and is paid mileage on country calls.

H. C. Young, Deputy Councilor

Keokuk County. During 1939 two new members joined our county society. We had no public health

program of our own, but cooperated in the tuberculosis program sponsored by the State Department of Health.

Our medical relief work has been a source of much regret to us. For many years the board of supervisors has contracted with the lowest bidder for care of indigent families. This is an injustice to the indigent patient who has "certain inalienable rights" among which should be that of choosing his own physician. However, the supervisor who was responsible for this plan has been replaced on the board, and it now appears that the county medical society may be able to institute a better plan. We have been asked to confer with the board in formulating a fair and just plan for care of the indigent.

C. L. Heald, Deputy Councilor

Lucas County. Medical Relief Set-up: We have a contract with the board of supervisors for care of the indigent on a fee schedule. Although the plan is not entirely satisfactory, it seems to be the best we can procure. Approximately 500 families were cared for each month in 1939. They had free choice of physician, but were not supposed to change without the consent of the first physician. Three physicians of the county society act as an auditing committee.

Public Health Programs: We cooperated in the statewide smallpox program, immunized some children against diphtheria, and held one tuberculosis clinic. We have no interprofessional organization. We held regular monthly meetings which were attended by 85 per cent of the members. We have 100 per cent membership in the county and state medical societies.

R. C. Gutch, Deputy Councilor

Mahaska County. We lost one member by death in 1939 and gained two new members who located in the county during the year. We had no postgraduate courses, but attended those given in other districts. We held a joint meeting with the Mahaska County Dental Society and discussed the problems confronting both groups. The meeting was so successful that it is planned to have more in the future. We also sponsored a program to re-test and check former tuberculosis patients.

L. F. Catterson, Deputy Councilor

Marion County. The Marion County Medical Society maintained its membership rating of 91 per cent for the year 1939. We gained one new member and lost one by death.

Medical Relief Set-up: Medical care has been given to the indigent families in the county under the IERA plan. All but three physicians in the county participate in this plan, and it has proved satisfactory. We experimented during the year with an insurance plan for care of FSA families. After a trial of seven months, the plan has proved disappointing.

We had no postgraduate course in the county during 1939, but hope to have one in 1940. We sponsored several immunization programs. We have no interprofessional association, although we have very friendly relations with the veterinarians whose state office is located in our county seat.

C. S. Cornell, Deputy Councilor

Monroe County. There are thirteen physicians in active practice in the county, nine of whom are members of the society. We held four regular meetings during the year.

Medical Relief Set-up: We have a contract with the board of supervisors for care of the indigent. The average number of families on relief who received care was 350 each month; the total number of authorizations for medical service issued was 4,230 for the year. A committee from the medical society audits the bills submitted, and they are then given to the supervisors, but are not always paid in full even after being audited. The figures for the year show that the bills submitted amounted to \$18,025.60; the auditing committee cut this amount to \$15,380.53; and the board of supervisors actually paid \$13,281.35. The cut was 26.4 per cent. The plan is working satisfactorily with the exception of the reduction of bills. We feel that this work has passed the emergency stage and is with us permanently now, and that any program should take that into consideration. If we were paid 50 per cent of our regular fee schedule for the work, with no further cuts, we would be satisfied.

We do not have an interprofessional association. We vaccinated 103 children and immunized 153 in the statewide campaign.

T. A. Moran, Deputy Councilor

Wapello County. Medical Relief Set-up: The board of supervisors appoints one physician to serve the 717 indigent families in the county and the 100 old age pensioners. This physician also has charge of the venereal disease clinic which at the present time has 140 patients under treatment. He is paid \$3,100.00 a year, is allowed two weeks' vacation, and \$600.00 a year for the use of his car. His office room, secretary and medicines are furnished by the supervisors. His contract does not specify that he shall give obstetric or fracture care, or general surgery. Such patients are allowed free choice of physician, and the physician is remunerated according to a fee schedule.

Public Health Programs: We approved a smallpox vaccination program, and announced it in the schools, but only 150 children were vaccinated. The same was true of the immunization program; very few children took advantage of it. The local Red Cross set aside a fund for a tonsil clinic, and 100 children were benefited. These were from families not on relief. The Rotary Club also has a fund which pays for glasses for children whose families are not on relief; 60 of these were fitted during the year.

We have an active interprofessional organization which includes four counties in its membership. The organization holds one meeting each year at which time an outstanding speaker is invited to address the five professions.

E. B. Hoeven, Deputy Councilor

Wayne County. Medical Relief Set-up: Although we do not have a contract with the board of supervisors, we have an agreement to take care of the indigent in the county on a fee schedule. The plan is modeled on the IERA plan for medical care. The board sets aside \$2.00 a month for each family, of whom there are 225. They are allowed free choice

of physician provided that the charge will be the same as for the physician nearest them. In other words, mileage must be considered in making a choice. The physicians submit their bills monthly to a committee of three of their members, who audit them before submitting them to the board for payment. If the bills exceed the appropriation for the month, they are prorated; if they do not equal the appropriation, the balance of the money is turned back into the county fund and cannot be carried over into another month.

The county society cooperated in the statewide smallpox vaccination and diphtheria immunization programs. We held monthly meetings throughout the year with scientific programs presented by our own and guest speakers. We have no interprofessional organization.

C. N. Hyatt, Deputy Councilor

Tenth Councilor District

The activity during the past year has been at a lower ebb than usual, and the postgraduate courses were very poorly attended. It is our hope that interest will be revived in the coming year.

James G. Macrae, Councilor

Adair County. The Adair County Medical Society has maintained its activities in both the scientific and social fields during the past year. Our medical relief plan was unchanged. We receive a lump sum from the board of supervisors, and submit our bills monthly on a fee schedule. We have a committee which audits the bills, and no cuts are made unless we exceed our allowance. There are two hundred families in the county who are on relief. The patients are allowed free choice of physician, the only restriction being that he must reside near the point of call. All medical care is authorized by the relief office before service is rendered. The plan works satisfactorily. Like all programs it has some defects, but it is impossible to find a perfect plan.

We carried on our public health programs as individual communities rather than as a county unit, but the net result was that the entire county was covered. Our interprofessional organization was not active. A Woman's Auxiliary is being organized, and it will combine its meetings with ours during the coming year.

A. S. Bowers, Deputy Councilor

Adams County. We have no contract with the board of supervisors for medical care of the indigent, but the patients are allowed free choice of physician. Membership in the county society was 100 per cent again. Three children were vaccinated in the statewide smallpox vaccination program. This was the only public health program we held. We have no interprofessional organization. Several physicians attended postgraduate courses in the district.

W. F. Amdor, Deputy Councilor

Clarke County. The society has functioned this year with a minimum of friction, due in part possibly to the holding of regular monthly scientific and busi-

ness meetings. The society gained two new members during the year, and lost two who moved from the county. All eligible physicians are members of the society.

Medical relief is paid out of state funds, a fixed sum being allowed each month for families on relief. The biggest drawback to the plan is that funds are not allowed to accumulate from month to month. If they are not used in one month, they revert to the state and cannot be used in months when the load is heavier. Bills are submitted on the basis of a fee schedule, and are audited by the society as a whole. Patients are allowed free choice of physician. The plan is satisfactory except for the drawback mentioned.

The society cooperated in the smallpox program with very satisfactory results from the standpoint of children immunized and vaccinated.

H. E. Stroy, Deputy Councilor

Decatur County. The Decatur County Medical Society gained one new member in 1939 and lost one who moved from the county. Regular monthly meetings were held, the Decatur County Hospital, as always, being the center of activities. The society sponsored several immunization programs during the year. One physician represents the society on the Decatur County Central Nursing Committee, and as a result the public health work has been directly under the sponsorship of the society. Several members attended postgraduate courses and regional and national medical meetings.

Indigent patients receive medical care on authorization from the relief office. Physicians submit bills based on the relief fee schedule which is between 50 and 75 per cent of the regular fee schedule. The plan has been satisfactory to the society as a whole, and also to the patients.

The society is anxious to be active in state and local health programs. We have appreciated very much the mechanism by which regional health programs are dually sponsored by the State Department of Health and the local county authorities. All members of the society have made some effort to increase their medical education in order to become more proficient in the newer methods of treatment.

E. E. Gamet, Deputy Councilor

Madison County. Medical Relief Set-up: Our medical relief program is practically the same as the old IERA plan. We have 227 families of 910 people, plus 34 single persons who are eligible for medical relief. They have free choice of physician. Bills are submitted on the basis of the fee schedule in effect, and are audited by our committee. The plan is not entirely satisfactory, but we are continuing it for want of a better one.

We held regular monthly meetings during the year with a scientific program presented by an out-of-town speaker following dinner. We vaccinated 121 children in the statewide smallpox campaign. We also gave a check up to tuberculous patients during the year. We do not have an interprofessional organization.

C. B. Hickenlooper, Deputy Councilor

Ringgold County. There was no change in membership during 1939. The society was not very active, but had several called meetings with a program prepared by members of the society. Some physicians attended the district postgraduate course. We cooperated in the statewide smallpox program. Our interprofessional organization was not completely effected, and is not active.

Medical care of the indigent is given under a plan similar to the IERA plan. It seems to be satisfactory to the board of supervisors, and also to the majority of the medical profession.

E. J. Watson, Deputy Councilor

Taylor County. We have a verbal agreement with the board of supervisors for care of the indigent. It is based on a fee schedule with no set sum allotted for the year. Between 80 and 90 families receive medical care each month, being allowed free choice of physician. An authorization from the relief office is given for each call for service. The plan is the most satisfactory we have ever tried.

We have no public health program, and no interprofessional association.

G. W. Rimel, Deputy Councilor

Union County. Our medical relief plan is based on a reduced fee schedule with a maximum figure established by the board of supervisors for medical care of indigent persons. If the bills exceed that maximum figure, they receive a horizontal cut. A committee of three audits them each month. There are between 69 and 115 families on relief who are eligible for medical care, all of whom are allowed free choice of physician. The plan is satisfactory for emergency medical care, but not as a long time program.

During the year the county society cooperated in the statewide smallpox vaccination campaign, examined high school students and 4-H Club members. Several members of the society also donated their services at a reduced fee to the Creston Kiwanis Club's clinic for tonsillectomies and fitting of glasses.

Our interprofessional organization is functioning through its officers, although it has had no active program.

Howard G. Beatty, Deputy Councilor

Warren County. The medical relief problem in Warren County has been very satisfactorily solved by the provision of medical care to indigents on the IERA fee schedule. A committee from the medical society audits the bills. Approximately 225 families are served under the contract which we have with the board of supervisors.

The society sponsored several immunization programs throughout the county. In Indianola, 55 per cent of the students have been vaccinated and 75 per cent have been immunized. Other schools in the county had similar programs. Preschool children, 4-H Club members, and Girl Reserves were given health examinations.

A committee appointed by the county society determines which patients shall be sent to Iowa City for hospitalization. Fees from this go to the county society and are used to pay state society dues and the

expenses of the four medical meetings held each year.

We do not have an interprofessional association. Our physicians conducted six forums for rural Parent-Teacher Associations.

C. H. Mitchell, Deputy Councilor

Eleventh Councilor District

The district as a whole carried on its usual activities during the year. No attempt was made to hold a postgraduate course in any county in the district in 1939 because in 1938 the physicians seemed to have lost interest and to feel that the courses took too much of their time. The district cooperated with the Women's Field Army in its educational campaign. The individual county societies met regularly during the year, and presented many scientific programs. Each county has a medical relief program, and apparently they are functioning satisfactorily.

Herewith are the reports of the deputy councilors.

M. C. Hennessy, Councilor

Audubon County. Membership in the Audubon County Medical Society is 100 per cent. We held four meetings during 1939.

Medical Relief Set-up: Our county is no longer receiving state funds for medical care of the indigent, but all bills are paid directly by the board of supervisors. Patients have their choice of physician. Bills are submitted on the basis of the IERA fee schedule, and are audited by a committee appointed by the medical society. They are subjected to a ten or fifteen per cent cut if the total for the month is very large. The main difficulty with the plan is that the patients demand unnecessary care. They know they do not have to pay for it, and so demand everything possible.

We cooperated in the statewide smallpox program, but because of the fact that many of our children had been vaccinated previously, not many were brought for vaccination during the campaign. We also cooperated with the State Department of Health in its tuberculosis program. We do not have an interprofessional organization.

L. E. Jensen, Deputy Councilor

Cass County. For the first time in the history of the society, every physician in active practice in the county was a member of the Cass County Medical Society. We do not have a contract with the board of supervisors for the care of the indigent, but only an arrangement with the board to submit our bills in accordance with a definite fee schedule. The patients have free choice of physician. We feel the fee schedule used by the board is too low, but we are serving in spite of that fact.

We cooperated in the statewide smallpox program and at the same time immunized those children needing protection. The toxoid and vaccine were administered in the office of the family physician for a predetermined fee. Approximately 450 children were seen during the campaign. We have no public health program of our own, but have asked the State Department of Health and the Iowa Tuberculosis Asso-

ciation to make a survey of Cass County in 1940, in which we will cooperate. We have no interprofessional association.

R. L. Barnett, Deputy Councilor

Fremont County. Medical Relief Set-up: Our county society has an unwritten agreement with the board of supervisors for care of the indigent and also the families with limited incomes who are not on direct relief but who are, strictly speaking, medically indigent. The twelve physicians in the county have worked in harmony with one another, the relief office and the board of supervisors, and as a result the work has been done well. The patient has his choice of physician, and the physician bases his charge for service upon a flexible fee schedule which has been agreed upon by the board and the county society. Bills are audited by a committee from the society, and are presented to the relief worker for his final approval, after which they are paid promptly by the board. Obstetric care for the indigent and low income groups is included in the program, and the doctors give special prenatal and postnatal care, with a resultant mortality rate of zero for the group. We feel the plan is very satisfactory to everyone concerned, and that the patients receive the best care possible. Venereal diseases are not included in the plan for medical care.

We included immunization in the smallpox program, giving both toxoid and vaccine to the child, and following with a Schick test. The fee for both services, plus the Schick test, was \$1.50. Four hundred children received protection. We stressed the importance of protecting preschool children. We are planning to conduct a first aid training course of fifteen weekly classes to which will be invited all teachers in the county, all highway garage and filling station attendants, and all road maintenance men. We have no interprofessional association. Every member of the society attended some of the various medical meetings in this district during the year.

Ralph Lovelady, Deputy Councilor

Harrison County. We are still operating under the IERA plan for care of the indigent in the county. The county society has seventeen members out of a possible twenty-three in the county. Regular meetings are held each month and are well attended.

A. C. Bergstrom, Deputy Councilor

Mills County. Every physician in active practice in the county was a member of the county society during 1939.

Medical Relief Set-up: The society has a contract with the board of supervisors for care of the low income and indigent families in the county. It is based on a fee schedule and allows the patient his choice of physician. Bills are submitted monthly on special forms, are authorized by the relief office, audited by a committee appointed by the medical society, and given to the board of supervisors for payment. Approximately 140 families received medical assistance during 1939. The plan worked very satisfactorily with one exception; it does not provide adequate care

for patients with venereal disease. We receive no state or federal funds for this work.

The smallpox program was carried out at a most appropriate time in Mills County, because of the prevalence of many cases of smallpox which emphasized the need for vaccination. We have no interprofessional organization. No postgraduate courses were held in the district, but members of the society attended those held in neighboring districts.

Dean W. Harman, Deputy Councilor

Montgomery County. The Montgomery County Medical Society experienced a very good year in 1939. Ten meetings were held, and a spirit of harmony seemed to prevail. We still have an agreement with the county board of supervisors for the care of the indigent, and both the supervisors and the physicians are satisfied with it. Two meetings were held with the Woman's Auxiliary, one a picnic and one a Christmas dinner.

W. S. Reiley, Deputy Councilor

Page County. Medical Relief Set-up: The board of supervisors employs two social workers to take charge of the relief work in Page county; one in Clarinda and one in Shenandoah. The county society does not have a contract with the board of supervisors for medical care of the indigent. The social workers authorize the necessary medical care, and the patient has free choice of physician. The fee schedule approximates that of the IERA plan. The bills are audited by the president and secretary of the county society, and these two men also act as an advisory committee on medical matters for the social workers. In practically all instances the opinion of this committee is accepted in matters of surgical and medical care. A summary of the total cost of medical relief in Page County for 1939 may be of interest. The population is 28,000 people.

Medical care, including some medications.....	\$4,110.31
Drugs, including insulin.....	369.08
Hospital bills	2,779.12
58 major and minor operations	
(fees to physicians).....	1,581.00
	<hr/>
	\$8,839.51

Public Health Programs: We conducted a program to vaccinate and immunize children in the eastern half of the county in 1939, but did not join the statewide program in the fall. We plan, however, to carry out the work during February, 1940. The Kiwanis Club of Shenandoah paid for fifteen tonsil and adenoid operations for children of indigent families during 1939. This represented a cost of \$265.00 for medical fees and hospital bills. The Social Service League of Page County and the Red Cross also spent some money on similar projects. The President's Ball netted \$100.00 for the local committee, and the money was given to the Hand Memorial Hospital.

The Clarinda Municipal Hospital was completed and opened for occupancy in September, 1939. It is a splendid new building, completely equipped, and well staffed for practically all kinds of medical and surgical work. It has room for 38 patients. The

hospital and equipment cost \$141,000.00; the landscaping and street improvements \$10,000.00 extra.

Two new physicians located in the county in 1939, and one moved away.

W. H. Maloy, Deputy Councilor

Pottawattamie County. During the past year the Pottawattamie County Medical Society had few activities except those relating to the medical relief problem. The society held no child health clinic, had no formal public health program, and did not enter the statewide smallpox vaccination program. The program of immunization against diphtheria has lagged, partly because certain lay groups insisted on group immunization at reduced fees, and partly because some of our members were anxious to cooperate with the lay groups rather than with the society. We have held some business meetings, but few scientific meetings. There is an interprofessional group in the community, but it was not active during the year.

Medical Relief Set-up: We have a verbal contract with the board of supervisors, subject to the IERA rules. It is based upon a fee schedule. Approximately 1,300 families are cared for each month under this arrangement. They have free choice of physician but not of hospital. Our auditing committee meets monthly and scrutinizes all bills. The plan could not be called satisfactory. The chief objections to it are:

1. The program as a relief program is too broad, extending almost complete medical care instead of emergency service.
2. There are too many services given because of the patient's freedom to demand and receive services on his own initiative.
3. On the average, hospitalization is too extended.
4. Although the program does not include medical fees in WPA cases, it does include hospital payments and thus encourages non-emergent hospital work.
5. Drug expense is too high because of failure to adhere to the rule that all drugs must be of the simplest type compatible to efficacy.
6. Too much costly work is being done locally instead of being sent to Iowa City. The commitment policy should be changed so as to limit commitments to cases which are of instructional value and of major importance.
7. The treatment of syphilis under this program has assumed a cost completely out of proportion to its importance. Although the treatment of contagious syphilis is necessary, there can be no justification for the interminable treatment of non-infectious cases such as is required under the federal program.

Jack V. Treynor, Deputy Councilor

Shelby County. We had a total of nine members in 1939, which was 100 per cent. One physician moved from the county during the year, and two new men began practice. We held four meetings, combining business with scientific programs and discussion.

Medical Relief Set-up: We have an agreement with the board of supervisors, based on a reduced fee schedule, for medical care of relief clients. Under this agreement the patient has free choice of physician. Service is authorized by the relief office, and bills are audited by a committee from the county society. The plan is successful, the bills are paid, and the patients and physicians are satisfied. Our medical relief committee has tried to discourage the granting of medical relief to borderline cases, and to make certain that physicians should not be responsible for starting any patient on the path to relief. The committee has also tried to confine admissions to the University Hospital to the real indigents. It has also promoted the prescription of simple drugs whenever possible instead of more expensive ones. We believe these activities of the committee have been responsible for much of the success of our plan for medical relief.

Public Health Programs: The county society carried out the tuberculosis case-finding program sponsored by the State Department of Health, and more than 40 patients were x-rayed. The society also cooperated in the smallpox program, advertising it in the county, but because of an epidemic of smallpox the previous year, many people had just been vaccinated, and so comparatively few vaccinations were made during the campaign. Members of the society examined 4-H Club boys and girls, and also served at an infant welfare clinic held each year in connection with the county fair.

All of our members have affiliated with the inter-professional organization, and one meeting was held during 1939.

A. L. Nielson, Deputy Councilor

Dr. Winkler: Mr. Speaker, I move that this report be approved as read.

The motion was seconded, put to a vote and carried.

Dr. Bierring: Does that mean that those committees as appointed are now regularly appointed committees of this House of Delegates?

Dr. Winkler: As I understand it, Dr. Bierring, this committee is appointed only up until Friday of this week, after which time the new Council will have the power of appointment.

Dr. Bierring: The motion is just for an acceptance of your report. Is that it?

Dr. Winkler: Yes.

Dr. Bierring: That doesn't authorize the appointment of these committees, does it, for the coming year?

Dr. Winkler: No, not for the coming year; up until Friday of this week only. This is a temporary committee.

Dr. Bierring: It seems to me there is a good deal of misunderstanding about this tuberculosis question and, therefore, before this House finally acts on it, I would like to have an opportunity to say something about it.

Dr. Fay: Mr. Speaker, I move that Dr. Bierring be given the privilege of the floor for three minutes to

explain what he wants. He is not a member of the House. I move that he be given that privilege. (This was granted by common consent.)

Dr. Bierring: Unfortunately, I have not been able to be present at any of these committee meetings because I have been out of the city. Therefore, I have not had an opportunity to explain some of the tuberculosis work that is going on in Iowa with reference to its relation to the State Department of Health. I thought it would be of interest to you to know that there has been a cooperative case-finding plan in operation during the past two years, between the Iowa State Department of Health and the Iowa Tuberculosis Association, which applies to 81 counties in this state, so-called rural counties, which are cooperating in this plan. In each instance, the plan has the approval of the county medical society. It pertains only to case finding. The county societies note the number of deaths in their respective counties during the past year. They then find the household contacts by means of a local nurse, or by a field nurse placed there by the department. After the contact patients have been collected they are given the Mantoux test. Those with positive reactions then have an x-ray of the chest made. These x-rays are either made locally by arrangement with the county society, or by a competent x-ray technician if a portable x-ray is used. The films are developed in the State Department of Health laboratory. The findings are reported to the physician. There is no indication of a suggestion of treatment, or disposition of the patient. It is purely a case-finding program. In the report sent out by the chairman of this new committee, it was referred to as a chest clinic. It is in no sense a clinic. It is a conference for collecting cases, ascertaining the findings, and placing those at the service of the physician.

Of the 81 counties, 18 have an independent program. Ten of these have a county tuberculosis association. These are: Black Hawk, Boone, Cerro Gordo, Des Moines, Jasper, Kossuth, Polk, Pottawattamie, Scott and Woodbury. In a number of counties a physician is the chairman of the tuberculosis association. There are always representatives of the county medical society on the board or on the executive committee. Funds are collected through the sale of Christmas Seals. In all instances, the county society has a word to say and is represented on the Seal committee. Twenty-eight per cent of the fund goes to state and national society support, and seventy-two per cent remains for local expenditures. That pertains to the eighteen counties. In 81 counties, the average that goes to the national society is five per cent. That is a fixed fee. The State Tuberculosis Association receives 28.4 per cent and three per cent, plus, for supplies, stationery, and the like; 63 per cent of the fund remains for local use, to be devoted to case-finding programs. Various counties have different programs. The single program does not seem to apply in all counties and is not approved by all the county medical societies. Some have school work. In Polk County there is now a complete program for

ninth grade pupils. One-third of the school teachers are now subject to an examination.

Of the money that is collected in these 81 counties, 28 per cent is contributed to the State Tuberculosis Association and with that it joins with the State Department of Health in a cooperative case-finding program. The budget for this now is \$35,000; \$17,500 contributed by the Iowa State Tuberculosis Association, \$8,000 by the State of Iowa, and about \$9,000 by the United States Public Health Service. By means of this combined program, there are provided a director, a supervising nurse, four field nurses, stenographic assistance and supplies. The thought I want to leave with you is that there is a program going on in every county, in which the county societies have a part. The part the State Department of Health has had is purely preventive, and in no sense has it had anything to do with treatment. It would seem to me that an advisory committee to cooperate with physicians that represent you in the State Tuberculosis Association would be perfectly proper. There are three such physicians now: Dr. Winkler representing the general profession, Dr. Painter the sanatoria, and Dr. Barnes the laboratory side. An advisory committee acting with them and with the Speakers Bureau and the State Department of Health could do this, but according to the letter which was sent out by the chairman of this new committee, there evidently is a wish to control the funds that are expended. That is the point I wish to mention.

Dr. Ellyson: As chairman of the temporary committee appointed by the Council, may I have the privilege of the floor for just a few minutes to explain the Council's attitude on this program?

The Speaker: Yes.

Dr. Ellyson: Mr. Speaker, I think Dr. Bierring will agree with me that I know as little about tuberculosis as anybody in this House, and I presume that is the reason I was appointed on this committee from the Council, with two other members, at the request of a number of parties interested in better cooperation and better coordination of the medical profession in the fight against tuberculosis in the state of Iowa. At my request, we called a committee meeting a few weeks after our appointment. On December 3, this meeting was held in Cedar Rapids. A representative of every active tuberculosis organization in Iowa, every official organization, was invited to sit in at an unbiased round table meeting at that time. Dr. Bierring, unfortunately, could not be with us, but sent his representative. A representative has been requested at each of the two or three meetings that have been held since then. The resolutions adopted at that committee meeting and by this committee were intended primarily to coordinate the work. There was no criticism of the State Department of Health or the Iowa Tuberculosis Association, but we felt, from the suggestions we received that the general practitioners, as well as the specialists in the treatment of tuberculosis, should work together in a more cooperative fight against tuberculosis in Iowa. It was in that spirit, not in a spirit of criticism in any way, shape

or form, that this committee held its meetings. Every man interested in tuberculosis from an official standpoint, and every organization, was represented. As a result of our activities, we formulated this resolution. There was no intention of dictating any policies. It was not our intention, and I do not believe it can be read into the report, to dictate any financial scheme. We did feel that if we could secure the cooperation of a larger percentage of general practitioners of Iowa in the fight against tuberculosis, it would be helpful in controlling tuberculosis. Therefore, we drew up this resolution which you have read, which has been approved by the Council, and we feel if you men support such a group cooperating with the State Department of Health, cooperating with the State Tuberculosis Association, and all other organizations, we will go much farther in the fight than we have been doing in the past.

The Speaker: Is there any further discussion?

Dr. Boice: Mr. Speaker, I would not say anything here if my name had not been mentioned. The letter to which reference has been made plainly stated that it voiced my personal opinion, and I was asking for the opinion of some twenty other men. I have never heard any other name but chest clinic given for work done in tuberculosis.

Dr. Bierring: They used to be called that, but not now.

Dr. Boice: That may be, but I have never heard it given any other name than that of chest clinics. I stated at the time of our first meeting that the reduction in the death rate from tuberculosis in Iowa of some 60 per cent in the last twenty-five years had been largely due to education, but that in the next fifteen years reduction was going to be harder, and the active support and interest of the medical profession would be necessary to accomplish it. I still think so. I understand one or two words which have been written in this report have been misconstrued. If you will read that report, you will find: "The committee shall further cooperate with the Speakers Bureau to arrange programs before the medical societies concerning tuberculosis, its incidence and means of control." That is not control of money; it is the control of tuberculosis. It has nothing whatever to do with the amount of money which may be spent. It means the control of tuberculosis. I certainly do believe the doctor should be interested in the raising of money; should take part, if he so desires, in the sale of Christmas Seals in his county. And I believe the medical society should take an active interest. I know all about the county societies giving permission for the work to be done. Of course they do. There never has been any intention of going into any county in which the doctors were not agreeable. However, I believe the doctors should go farther than being agreeable and giving consent; I think they should help. If we are going to reduce further the death rate from tuberculosis in the state of Iowa, the doctors are going to help. The matter of education cannot solve the problem. I want to assure Dr. Bierring, and any others interested, that there is no at-

tempt, wish or desire on the part of the Council or any member of this committee to abrogate any functions that belong to anybody else or to any other organization, but it is the desire of this committee to educate the doctors in tuberculosis, just exactly as another committee is attempting to educate the physicians in cancer control. I believe when we can get the doctors to take an active interest in the sale of Christmas Seals, there will be more money raised for this purpose, and therefore there will be more money for use in the counties for these chest clinics, or conferences, whatever you may call them; and there will be more money for the Iowa Tuberculosis Association, and there will be more money, too, for the State Department of Health. It is a matter in which I have been interested. Like Dr. Ellyson, I do not know very much about tuberculosis, but I do know that the doctor should be the one man of last resort, and he should take an active part in the control of this disease, not the control of the money.

The Speaker: I think it is evident that if the committee and Dr. Bierring got together, they could get the matter settled satisfactorily. Previously, I asked for a vote on the report of the Council, and I declared it approved. That stands. The next report will be that of the Delegates to the American Medical Association.

REPORT OF THE DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

At the opening session of the House of Delegates of the American Medical Association, Dr. Deering G. Smith, New Hampshire, Chairman of the Reference Committee on Credentials, reported that 153 delegates with proper credentials had registered.

The Committee on Distinguished Service Awards submitted five names to the Board of Trustees for consideration in presenting the Distinguished Service Award. The Board selected by ballot the following for presentation to the House of Delegates: Drs. J. B. Herrick, Chevalier Jackson, and Edward Jackson, of whom Dr. James B. Herrick of Chicago was chosen for the award.

In his address to the House of Delegates, Dr. H. H. Shoulders, Speaker, pointed out that the distribution of the 174 delegates was responsible for the fact that every shade of opinion and every possible interest was represented in all meetings. Dr. Shoulders showed how in spite of insurmountable difficulties, a relatively small amount of time, and no reference library, "one finds in the Proceedings of the House a golden thread of consistency which runs straight through all the actions taken on all issues presented which in any way touch the fundamental principles to which you have given allegiance." The Speaker attributed this to the fact that "this House is not subservient to any such person (dictator or boss), and more fortunate still is the fact that no one seeks such power, nor could one obtain it under our democratic organization." Dr. Shoulders expressed a belief in coordinated effort on a democratic basis and asked that all delegates

look to the duties of the coming session with faith in one another.

Dr. Irvin Abell, President, and Dr. Rock Sleyster, President-elect, presented excellent addresses which should be read in their entirety by every member of the Iowa State Medical Society.

Dr. Olin West, in his report as secretary, analyzed the membership and fellowship records for the period 1934-1938. In 1934 the number of members was 98,041 and the number of fellows was 60,714, as compared with the 1938 totals of 113,113 members and 70,100 fellows. These figures were used by Dr. West to refute statements that there had been disaffection among the physicians of the United States or that there was dissatisfaction regarding the established policies of the American Medical Association. Dr. West compiled a table to show the strength of organized medicine in state and county associations.

Then followed the extensive reports of the Board of Trustees. The total income of the Association was larger in 1938 than in 1937, but the total expenditures were larger than the income by \$11,401.51. In connection with the publications of the American Medical Association, the Board expressed a desire to maintain the JOURNAL in its position of leadership in the field of medical journalism. Some new sections of the JOURNAL added in the past year were discussed. Among these were the student section, which deals with student activities and medical schools, and the organization section, devoted to problems of current interest in legislation and medical economics. The total circulation of the special JOURNALS increased slightly. The Board of Trustees reported that the activities of the Library of the American Medical Association continued along the lines previously followed. During 1938, 13,013 periodicals were loaned to subscribers. The Board stated that every possible effort is being made to further the development of *Hygeia*, whose circulation now exceeds 100,000. Improvements have been made in the typography, arrangement and illustrations. Material from *Hygeia* is being reproduced in lay publications and has been used in radio programs. The net loss in this publication for 1938 was set at \$18,896.12. Recent books and new editions of book publications of the American Medical Association were cited. The year 1938 witnessed the publication of the fifteenth edition of the American Medical Directory. The new edition shows 13,000 new names, bringing the total to 188,916 names.

Important legislation enacted by Congress in 1938, reviewed by the Council on Pharmacy and Chemistry, included a bill regulating the advertising of foods, drugs and cosmetic preparations outside the package, over the radio and through newspapers. Another provided that no new drug preparation could be placed in interstate commerce after June 25, 1938, until it had received a license from the Food and Drug Administration. These laws were designed to carry out certain policies similar to those of the Council on Pharmacy and Chemistry and will aid

the work of this Council. They recognize and provide for pronouncement of expert medical opinion. The amount of work which must be undertaken by this Council required the addition of two new members.

The Council on Foods emphasized the cooperation of members of the food industry. Very few products have been rejected because producers were unwilling or unable to meet the requirements concerning the nutritional claims on labels or in advertising. This Council has prepared brief accounts of the principles which underlie the selection of an adequate diet. There has been an effort on the part of the Council to devise a means whereby meritorious foods may be given proper recognition.

The Council on Physical Therapy directed its important work in 1938 to consideration of radium and radon seeds, artificial limbs, audiometers and hearing aids, roentgen ray apparatus and the examination of other therapeutic apparatus. A meeting was held by the members of the Council with officials of the Federal Communications Commission and other interested bodies to discuss the problem of electro-medical equipment which interferes with radio communications. Ways and means of solving the problem were considered but no definite action was taken.

The Council on Industrial Health in 1938 completed its first year of organized activity. To date

its attention has been mainly concerned with internal development and organization. Work is now under way to bring order into the field of industrial medical nomenclature. Plans to introduce sound instruction in the fundamentals of industrial hygiene have been discussed. These plans are for both the medical student and practicing physician. The Council is investigating the relationship of trauma to appendicitis. Independent agencies whose aim is industrial health have been investigated and any of their activities which bear on the health of the worker will be brought before the medical profession.

The Council on Medical Education and Hospitals has devoted much thought and effort to the problem of graduate education and training with a view to establishing standards and increasing facilities for the acquisition of training on a basis of the requirements established by the specialty boards. This problem is an intricate one, but it can be solved with the cooperation of the agencies interested in it. Events of momentous importance involving medicine have evolved from the changing social thought of recent years.

T. F. Thornton, Delegate

Dr. Thornton: I move adoption of the report as printed in the handbook.

The motion was seconded, put to a vote and carried

Reports of Standing Committees

The Speaker: The next report is that of the Committee on Constitution and By-laws.

REPORT OF THE COMMITTEE ON CONSTITUTION AND BY-LAWS

The Committee on Constitution and By-Laws, after due consideration, has no changes to recommend to the House of Delegates. At the 1939 meeting of the House of Delegates, the question was raised as to whether or not the Speaker of the House was entitled to a vote. According to the By-Laws, Chapter VI, Sec. 6, "The President-elect shall act as Speaker of the House". There is nothing in this by-law depriving him of the right to vote which he holds by virtue of his office as president-elect. Furthermore, Chapter VI, Sec. 1, of the By-Laws defines the duties of the president and states that he "shall give a deciding vote in case of a tie; . . .". It seems clear to the Committee that the By-Laws do not deprive the Speaker of his right to vote, and that they leave to the President the right to vote only in case of a tie.

Following the 1939 session, the Constitution and By-Laws were brought up to date with all revisions made, and were then printed and distributed to officers of the State Society, committee chairmen and county society officers. Your Committee does not recommend any further change at this time.

John H. Henkin, Chairman
Bush Houston
W. L. Alcorn

Dr. Henkin: I move that the report be accepted as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Committee on Finance, Dr. McClure.

REPORT OF THE COMMITTEE ON FINANCE

The Committee on Finance examined the books of the Iowa State Medical Society February 28, 1940 at the central office in Des Moines. The committee reviewed the audit for the fiscal year 1939, examined all bills and their respective orders and checks, and found the audit correct as prepared by Widdup and Company. The committee investigated outstanding obligations, and found that the Society owed nothing but current bills.

An accounting of outstanding notes was requested, and the secretary reported that in answer to a letter from the central office, about twenty had been paid during the year. The committee asked the secretary to make a record of checks outstanding January 1 so that they may be checked by the committee in 1941.

Ernest C. McClure, Chairman
A. S. Bowers
H. A. Tolliver

Dr. McClure: I move the adoption of the report as published in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Committee on Medical Economics, Dr. Shaw.

REPORT OF MEDICAL ECONOMICS COMMITTEE

The Committee wishes to express its sorrow in reporting the death on October 30 of Dr. A. C. Moerke of Burlington. Dr. Moerke had been a member of the committee for a number of years and was one of the most regular attendants at committee meetings. His advice was always sound, tempered by long experience in the practice of medicine, yet was always progressive in its trends. Dr. Bernard B. Parker of Centerville was appointed to take his place.

During the year, the committee directed its attention for the most part to five subjects: hospital insurance, medical relief care, collection agencies, FSA medical care, and studies of plans for medical care in other states. Following the passage of an enabling act by the Iowa legislature, a committee from the Iowa State Medical Society met with the board of directors of the Iowa Hospital Association to formulate a hospital service plan. The two groups worked together harmoniously and developed a plan which they feel will fill the need for hospitalization without interfering with or engaging in any type of medical practice. A company was incorporated under the name "Hospital Service, Inc. of Iowa", offices were opened in Des Moines, and policies were issued beginning December 1, 1939. A provision was made that all practitioners of medicine might obtain policies for themselves, their families and their office personnel by enrolling as groups through their county medical societies or hospital staffs. The Polk County Medical Society is now forming a group, and it is hoped that the medical profession as a whole will cooperate in this effort to solve one particular problem connected with medical care.

Medical care of the relief client is still a big problem. Following the revision of the state set-up and the appointment of a social welfare board, many changes were made in the methods of handling medical relief in those counties receiving state aid. For the most part, these changes nullified the improvements which we had been able to make with the old board. The new board, knowing nothing of the reasons for various rulings, and having had no actual experience with the administration of relief, proceeded to revise plans without consulting persons who had worked out the earlier plans. Our committee talked to the new board and has a promise of better cooperation in the future, although as yet we have been able to produce no tangible results. We did obtain a promise that the medical society would be consulted in the future before changes were made, but the individual who made that promise was later released by the state board of social welfare and we must start from the beginning again. However, the board has promised to meet with representatives of our committee to work out some satisfactory forms of county contract for medical relief, and to determine what a just allowance for medical care of indigent persons really is.

As usual, various collection agencies have applied to our committee for approval, and have been given

consideration, although no new agencies were approved. During the year, several physicians in Iowa turned over accounts to representatives of collection agencies and signed agreements which practically gave the accounts to the company to deal with as it pleased. Our committee has repeatedly urged that physicians employ only those agencies approved by the committee, or local collectors with whom they are personally acquainted, and has warned physicians of the dangers of signing contracts with unknown agencies. The committee urges that the physician have his attorney inspect the contract and make sure it is legitimate before he turns over his accounts to an agency which is not approved.

Members of the committee have watched with interest and have studied carefully the various plans formulated by different states to provide for the prepayment of medical care by various groups of the public. The plans are similar and are rapidly beginning to conform to a common pattern, with minor variations to care for local or state conditions. In most instances they are being developed by the state medical societies, and are worth the serious consideration of every member of this House of Delegates. Such plans may not be necessary or desirable in Iowa, but we, as the legislative body of our Society, should have full knowledge of the programs that are being developed elsewhere. Your Medical Economics Committee has corresponded and talked face to face with the men developing them and finds that without exception they are all attempting to provide medical care for the low income group at a cost the group can pay, and that they are in control of the program rather than some outside agency.

During the year we have received several requests to explain our methods of handling the medical relief problem in Iowa. The information has always been furnished. This House of Delegates should know that there seems to be a general feeling over the country that the county societies in Iowa have done an unusually good piece of work in developing these plans for medical relief.

A report of the experiences of Muscatine, Union and Marion counties in providing medical care for FSA clients will be given before the House of Delegates in session May 1 as a supplementary report.

Members of the committee attended the annual Secretaries' Conference in Chicago in November, and the National Conference on Medical Service in February, in order to become better acquainted with what other states are doing in medical economics.

E. E. Shaw, Chairman

Dr. Shaw: Not being a member of the House of Delegates, I have no right to move the adoption of the report of the committee as printed. I have asked Dr. Anderson to do that as a member of the House of Delegates, and I would like to present a supplementary report.

Dr. Anderson: I *move* the adoption of the report as printed in the handbook.

The motion was seconded.

The Speaker: Dr. Shaw will make a supplementary report.

Dr. Shaw: I would like to have the printed report adopted separately. The supplementary report deals with controversial matters. I would like to have it discussed separately, if possible.

The Speaker: We will have the report as printed in the handbook adopted first.

The motion was put to a vote and carried.

Dr. Shaw: At the annual meeting of the Iowa Welfare Association held in Des Moines, April 19, Dr. Ivins discussed the method of handling the medical relief problem through the clinic arrangement in Linn County. The chairman of this committee discussed the matter of rural medical relief care in Iowa. In the discussion afterward a representative of the press arose to question, in a sarcastic manner, the motives of the medical profession and to suggest that no one seemed to be interested in finding out the quality of medical care given relief clients in Iowa. It was with pleasure that we were able to inform him that we have under way at present plans for conducting such a study in cooperation with the Iowa State Board of Social Welfare and other interested agencies. It is hoped that, from this study, we may be able to determine the efficiency of the different methods of caring for relief clients, and at the same time come to some definite and accurate conclusions as to methods and costs of handling these programs.

The Farm Security Administration medical care experiment was carried on during this last year in Marion, Muscatine and Union Counties. The final studies on the material gained through this experience with a full year's complete care of a fairly large group of families under county society control, have not been made, since the year ended in these counties only last month. Union County has decided on its own initiative to continue the program, with possibly a few changes, for another year. When this matter was discussed at these county society meetings this year, the Medical Economics Committee did not enter into the matter in any way. We assisted with the inauguration of the plan a year ago, as instructed by this House of Delegates, and have followed the course of the experiment with interest. However, in renewing the plan, the entire decision as to further experimentation was left to the county society. This is in accord with the policy of the House of Delegates of the American Medical Association. Under the plan in the three counties, payment has varied from 40 per cent of the regular schedule to 100 per cent over periods of several months. With changes made this year and with experience gained in the last year, the plan should be more effective in the coming year.

Since December, 1939, the chairman of the committee has been attempting to secure a meeting with the new State Board of Social Welfare in an effort to come to a better understanding as to medical relief, with special reference to the counties still receiving state aid. We have had several letters stating that the Board will meet with us as soon as it has more statistics available. We hope that next year the com-

mittee will be able to procure this meeting and work out a more equitable arrangement for this care. We wish to express our appreciation for the cooperation given us by Dr. Channing Smith, medical consultant for the State Board of Social Welfare. He has tried at all times to expedite matters, and has the interests of the profession always in his mind.

At the annual meeting of Hospital Service, Incorporated, of Iowa, Dr. N. Boyd Anderson of Des Moines and Dr. George M. Crabb of Mason City were elected as directors to represent the Iowa State Medical Society. The Woodbury County Medical Society is represented by at least two members on the board of Associated Hospital Service of Sioux City. The Committee on Public Policy and Legislation has reported in regard to the situation developed at Fort Dodge through the attempts of both of these organizations to render service in the same city. The Iowa State Medical Society assisted in obtaining the enabling act under which these two companies have been organized. The idea back of the movement is not to develop a competitive insurance situation, but to render a service in making hospitalization available on a prepayment basis to the employed, low income group in Iowa. Direct competition between the two organizations would be inimical to the development of the movement in Iowa, and should be discouraged.

At the last meeting of the old Board of Directors of Hospital Service, Incorporated, of Iowa, a motion was passed that this company withdraw from the territory included in the Northwest Iowa Diocese of the Catholic Church and the Northwest Conference of the Methodist Church, and also from Council Bluffs, and leave this northwest Iowa territory to the Sioux City company for development. With such an arrangement officially agreed to by both companies, there should be no competition, and service should be available to all groups. It is possible, under the enabling act, for an indefinite number of these hospital service companies to spring up over the state, but there is a question as to whether it is wise to develop a large number, with duplication of overhead expenses and office personnel, where it is possible for one or two companies to cover the state satisfactorily. If such companies are to be financially sound, they must be large enough to reduce the percentage of overhead, which is much larger in the smaller company and which necessarily reduces the amount of money to be used in furnishing hospital care to the contract holder.

In giving any type of approval to these companies, it would seem wise for the House of Delegates, or some authorized committee thereof, to consider the organization and the services offered to the contract holder so as to assure the profession that there is no tendency to include medical care in the plan. This House of Delegates should discuss that matter and officially lay down some definite decisions as to whether only hospital services, bed, board and nursing care, with routine entrance laboratory examinations, are to be included or whether x-ray, pathologic examinations, anesthesia, and similar services are to

be approved as being hospital services and not fundamentally medical services. The committee having to deal with approval of companies would then have a definite basis for any opinions given.

The Speaker: You have heard the supplementary report of the Medical Economics Committee, as read by Dr. Shaw. Is there any discussion?

Dr. Anderson: I move its adoption.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the Committee on Medical Education and Hospitals.

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

The Committee on Medical Education and Hospitals has so far been inactive. Last year it was interested in the problem of the hospitals for the insane, and submitted recommendations which were probably of no interest to the legislature. The Committee was given no opportunity to participate in current activities for hospital insurance, a mat-

ter which occupied much of the chairman's time last year.

Jack V. Treynor, Chairman

Dr. Treynor: I move the adoption of the report, as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the report of the Committee on Necrology, Dr. Earl Bush.

Dr. Bush read the list of deceased physicians, following which the House stood in silence a moment in memoriam.

REPORT OF THE COMMITTEE ON NECROLOGY

Death came to sixty-three of our colleagues during the year 1939. The youngest was thirty-three years of age; the oldest eighty-eight.

We regret the passing of these men, and we ask that this House of Delegates stand in a quiet memorial to them as their names are read.

F. P. Winkler, Chairman
Earl B. Bush, Secretary

NAME	TOWN	AGE	DATE OF DEATH	CAUSE
Agan, George M.....	Glenwood	79	Mar. 14, 1939	
Arey, Rodney M.....	Muscatine	64	May 23, 1939	Coronary thrombosis
Baker, Howard N.....	Pierson	57	Feb. 8, 1939	Stroke
Bamford, Elmer E.....	Centerville	72	Jan. 6, 1939	
Barfoot, Albert F.....	Decorah	77	Nov. 20, 1939	Paralytic Stroke
Beauchamp, Joseph W.....	Bedford	88	Nov. 23, 1939	Skull fracture
Bliss, Edwin C.....	Grinnell	80	Feb. 26, 1939	
Blunt, Arthur W.....	Clinton	84	June 17, 1939	
Brown, William E.....	Cedar Rapids	59	Nov. 21, 1939	Heart
Carpenter, Fred F.....	Pella	69	Aug. 6, 1939	
Chilgren, Gustave A.....	Burlington	73	Sept. 17, 1939	Heart
Cole, Adalbert J.....	Clear Lake	86	July 17, 1939	
Cruikshank, Roswell D.....	Boone	63	Dec. 20, 1939	
Davis, Samuel K.....	Libertyville	76	May 28, 1939	
Decker, George E.....	Davenport	66	Nov. 3, 1939	
Dorsey, Frank B., Jr.....	Keokuk	50	Sept. 1, 1939	Heart
Duffin, Charles W.....	Guttenberg	79	Jan. 19, 1939	
Dun Van, Edgar K.....	Chelsea	67	Sept. 24, 1939	Heart
Elmer, Albert W.....	Davenport	81	April 6, 1939	
Fair, Adam B.....	Ottumwa	68	Oct. 21, 1939	
Fobes, Henry L.....	Auburn	70	April 4, 1939	
Fraser, Leonard E.....	Iowa Falls	58	Feb. 4, 1939	
Gadd, Edson E.....	Des Moines	70	Dec. 9, 1939	
Glynn, Charles E.....	Davenport	66	Mar. 5, 1939	Heart
Griffis, Arthur A.....	Tipton	77	Feb. 10, 1939	
Hagedorn, Harry H.....	Sioux City	55	April 4, 1939	Uremic poisoning
Harper, James A.....	Greenfield	71	Feb. 9, 1939	Heart
Hartley, George A.....	Battle Creek	56	Mar. 17, 1939	Heart
Hearst, George E.....	Cedar Falls	60	June 8, 1939	Embolism
Hill, Chalmers A.....	Council Bluffs	60	July 9, 1939	Paralytic stroke
Jacobsen, Robert A.....	Exira	60	Sept. 6, 1939	
Jerrel, Burt O.....	Oskaloosa	70	Aug. 17, 1939	Heart
Johnson, Mark E.....	Corning	77	Jan. 9, 1939	Coronary occlusion
Keefe, Frank M.....	Clinton	60	Nov. 9, 1939	Inoperable brain tumor
Lamb, Leslie	Lorimor	68	Aug. 5, 1939	
Larsen, William W.....	LeMars	55	Jan. 20, 1939	Sarcoma
Mabee, Curtis O.....	New Providence	82	June 20, 1939	
McEwen, Earle	Mason City	81	Feb. 17, 1939	
McKitterick, Nathaniel M.....	Burlington	81	Aug. 29, 1939	Heart

Miller, Bird H.	Blockton	71	Feb. 24, 1939	
Moerke, Albert C.	Burlington	72	Oct. 30, 1939	
O'Keefe, Mathew E.	Council Bluffs	58	Dec. 6, 1939	Coronary thrombosis
Patterson, James C.	Marengo	58	Jan. 18, 1939	Pneumonia
Plant, Oscar H.	Iowa City	64	Oct. 1, 1939	Coronary sclerosis
Plummer, Herbert W.	Lime Springs	62	Dec. 5, 1939	
Porath, William C.	Storm Lake	66	July 18, 1939	Heart
Powers, Fred W.	Waterloo	71	June 16, 1939	Cerebral hemorrhage
Ristine, James O.	Maquoketa	74	July 14, 1939	
Rolfs, John A.	Aplington	72	Aug. 29, 1939	Coronary occlusion
Ross, Arthur J.	Perry	82	June 19, 1939	Auto accident
Rowse, Robert Q.	Sioux City	69	Sept. 27, 1939	Heart
Skinner, Frank S.	Marion	66	Mar. 6, 1939	Influenza
Small, William B.	Waterloo	77	Oct. 9, 1939	
Smith, C. Colfax.	Clarksville	71	Dec. 5, 1939	Heart
Smouse, David W.	Los Angeles, Cal.	85	July 2, 1939	
Treynor, Vernon L.	Council Bluffs	72	June 12, 1939	
Vander Wilt, Walter	Rock Rapids	40	Feb. 7, 1939	Pneumonia
Warnock, Francis B.	Sioux City	80	Dec. 28, 1939	Coronary thrombosis
Wassom, George N.	Oelwein	58	May 8, 1939	
Weber, Jacob S.	Davenport	62	June 2, 1939	Heart
Weiss, Irving J.	Callender	33	Oct. 17, 1939	Leukemia
Welpton, Hugh G.	Des Moines	68	July 3, 1939	
Whalen, Richard H.	Tama	65	Sept. 4, 1939	Coronary thrombosis

The Speaker: The next order of business is the report of the Medicolegal Committee, Dr. Ely.

REPORT OF THE MEDICOLEGAL COMMITTEE

The Medicolegal Committee has nothing of interest to report since the Society has been involved in the defense of only one malpractice suit during the past year. The apparent inactivity of our committee does not indicate that malpractice suits against our members have become less frequent, or that no verdicts have been rendered against defendants. Every physician in our state should be increasingly vigilant for his own protection, and must not allow himself to become a poor risk if he wishes to continue to secure commercial protection.

F. A. Ely, Chairman

Dr. Fay: I move the adoption of the report as published in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the Committee on Publications, Dr. Hill.

REPORT OF THE PUBLICATIONS COMMITTEE

Your Publications Committee is pleased to announce that the JOURNAL has passed through another successful year. No untoward events transpired to mar the even tenor of its way. For the sake of brevity the following statistical table of comparisons, summarizing the important features of the JOURNAL is given:

	1937	1938	1939
Reading Pages	672	650	640
Advertising Pages	316	322	320
Percentage of Reading Pages	68%	66.9%	67%
Original Articles	96	98	107
Editorials	59	72	55
Total Cost of JOURNAL	\$12,214.10	\$12,422.58	\$11,545.70
Total JOURNAL Income	7,566.09	8,132.31	9,046.60
Net Expenditure for JOURNAL	\$ 4,648.01	\$ 4,290.27	\$ 2,499.10
Number of State Society Members	2,379	2,391	2,430
Net Expenditure per Member, Based on year's membership	1.95	1.79	1.03

It will be seen that the total cost of publishing the JOURNAL for 1939 was approximately \$900.00

less than in 1938, and that the total income was approximately \$900.00 greater, thus making a net expense some \$1,800.00 less than that of the preceding year. This substantial saving is to be accounted for in several ways. Fewer cuts were prepared for illustrating scientific articles, and this item constitutes the largest portion of the nine hundred dollar cut in expenditures. The increase in income is due to additional advertising contracts, secured by the Cooperative Medical Advertising Bureau of Chicago. This organization, which is an official body of the American Medical Association, merits special praise for its aggressive and highly successful efforts on behalf of the various state medical journals. Many new advertisers have made their appearance in the JOURNAL during the last twelve months, and we feel that Iowa received her full share of new contracts for 1939. However, your Committee again wishes to emphasize that the continuation of such favorable publication costs is directly dependent upon maintaining or increasing our advertising contracts. Commercial houses want to know that their advertisements are coming to the attention of the individual physician. Many of them insert coupons, offering free samples or literature, as a test of reader interest. A few coupons clipped and returned by interested members may mean the difference between cancellation or renewal of an advertisement. May we appeal to each delegate to make a special point of bringing this matter before his county society at an early meeting?

Turning now to the scientific side of the JOURNAL's activities, your Committee wishes to express its gratification over the quality of the material which was made available for presentation to its readers. The year 1939 was outstanding in the number of medical discoveries and in the advancement of scientific knowledge. Many of these subjects were presented in the pages of the JOURNAL. As an outstanding example we may cite the part played by the group at the University of Iowa in the discovery of Vitamin K. A further contribution of the medical

department at the University, which we feel has been a most valuable addition to the JOURNAL, is the monthly report of the proceedings of the staff meetings. It is our hope that these will be continued and will become a regular feature. We would also direct attention to the series of articles now being carried in the editorial section by Dr. James E. Kahler, pathologist at the Iowa Methodist Hospital in Des Moines on fundamental principles of pathology in certain major diseases. These, too, we hope may be continued sufficiently long to supply the readers of the JOURNAL with a fairly comprehensive summary of modern pathologic conceptions.

The editorial section, as in the past, has been almost equally divided between scientific and socio-economic subjects. In order that our readers may be fully informed we have thought it advisable to comment on all important events in the field of national and state politics and economics insofar as they were related to medicine. We wish to acknowledge the able assistance given in the endeavor by your Medical Economics Committee through its chairman, Dr. E. E. Shaw. Other departments of the JOURNAL, such as the State Department of Health section, the Woman's Auxiliary Page, the History of Medicine section, book reviews, notices of coming meetings and county society activities, have been faithfully maintained.

We believe we have a good JOURNAL. We want to continue to be proud of our state publication, but in order to do so, we will need the cooperation of all our members. We earnestly solicit your criticism and your continued support.

Lee Forrest Hill, Editor

Dr. Hill: Mr. Speaker, I again want to emphasize one point in the report, as I did last year, and that is to ask each delegate here to try, some time during the year, to bring the matter of the advertising pages in the JOURNAL before the county society. Suggest to the members of the county society that, if they see fit, they tell the advertiser they have seen his advertisement in the JOURNAL. It is surprising what a help this will be in keeping up the advertising quota which we like to have, and it means money in the pockets of all of us if it can be done. Many of the large advertising firms place advertisements in the various journals just as feelers. If they receive a certain number of replies they will carry good-sized advertisements throughout the year. If they receive no replies, and if no attention is given to the advertisement, they decide against continuing that contract. I move the adoption of the report as it is printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the Committee on Public Policy and Legislation, Dr. Fred Moore.

REPORT OF THE COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Since there has been no session of the General Assembly of Iowa since our last annual meeting, your Committee has no report regarding pending

or proposed legislation within the state. Our last annual meeting was coincident with the closing days of the Forty-eighth General Assembly, and in that connection you were advised of the enactment of measures which permitted development of non-profit group hospital insurance in Iowa. Your attention is called to satisfactory progress in the field since our last meeting. It is dismissed with only a reference in this report because your Committee on Medical Economics is reporting on it in detail. Your Committee on Public Policy and Legislation requests your consideration of an important policy therewith. Obviously there is no legislative limit on the number of such companies that can be developed. There are two in the field now: Associated Hospital Insurance Company of Sioux City, and Hospital Service, Inc., of Iowa. One important problem is presented in the following situation: One of the Fort Dodge hospitals joined Hospital Service, Inc.; later the other Fort Dodge hospital joined Associated Hospital Insurance of Sioux City, and the latter company opened an office in Fort Dodge to solicit hospital insurance there. The hospital that identified itself with Hospital Service, Inc., is now under pressure to join the other group. Obviously it will be difficult for any hospital to have multiple membership in such groups. It is equally apparent that it may not be economical and to the public interest to have two such groups competing in the same area. It appears now that the competition should be between commercial and non-profit groups rather than between non-profit groups. This situation is one that should yield to the proper expression and influence of the medical profession and the Iowa Hospital Association. When such conflicting interests develop, the local medical profession should be instrumental in solving the problem in the public interest.

The National Health Measure and the United States Congress

Your Committee has been active in keeping the various aspects of this question before the Iowa congressional delegation. Appropriate literature has been sent to our Congressmen from your state office. The response from them has been encouraging and leads us to believe that none of our representatives there has an exaggerated notion about what the government can do in providing personal medical service. Your Committee urges that you continue to support your congressional representatives in your own respective districts against propagandists whose expressions reflect less knowledge of medical problems than of theoretical interest in social reform.

Radio Programs

You are urged to pay attention to radio programs which create erroneous impressions and pictures of health interests and to register your protests. A series of such programs was given last winter under the title "Democracy in Action." They were sponsored by the Social Security Administration through the United States Bureau of Education.

Some of these programs grossly misrepresented facts pertaining to health and medical practice in this nation. Your Committee protested and challenged some of these programs directly at their sources and sought the support of our Congressmen in this matter. Our Congressmen were responsive and took up the matter directly with the appropriate federal agencies. Those responsible for the items under protest acknowledged the errors and corrected them in subsequent programs. It is encouraging that any such response could be obtained from agencies so entrenched and remote. Our Congressmen are interested in these things and will consider protests if they are specific and tangible. A current press report indicates that the House has tentatively banned melodramatic programs broadcast by the Department of the Interior to support pending legislation in oil conservation. This is further indication that Congress is sensitive to this field of activity.

On account of the surge in social legislation which still prevails in large measure it is probable that the next General Assembly in Iowa will be presented with numerous bills affecting health interests. Therefore, your Committee urges that you use your influence at once in the selection of competent men in the primaries from your several districts.

As a means of keeping abreast of developments having to do with the interest of the profession, your Committee was represented at recent meetings in Chicago of the National Conference on Medical Service and the Congress on Medical Education and Hospitals.

Fred Moore, Chairman
R. D. Bernard

Dr. Moore: Mr. Speaker, I wish to make a brief supplementary report. Before I do that, I *move* the adoption of the report as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Now we will have the supplementary report.

Dr. Moore: There are many angles into which we might go in a discussion of the activities of this committee. I only want to call your attention to the problem of group hospital insurance. I am sure you will be interested and pleased to know that at the present time there are somewhere between 3,000 and 3,500 persons covered for hospital service by that company. It began to take subscribers the first of January, and the number has been pushed to somewhere between 3,000 and 3,500 now. Most of them are in Des Moines. Some are in Dubuque. There are more Des Moines subscribers because most of the money which has been used for organization, up to this time, has been provided in the Des Moines territory, and it is very essential that the company develop a supporting group as rapidly as possible. It is now ready to extend its activities into Cedar Rapids and Dubuque, and to reach other areas where hospitals are participating just as rapidly as possible. The situation to which your attention is called is with reference to duplication of efforts of two hospital service insurance companies in the same area. As is pointed out specifically in this report, the or-

ganization which was developed in Sioux City and the organization which was developed here both found themselves in competition for non-profit business in Fort Dodge, where one hospital joined one organization, and the other hospital joined the other. I am pleased to report to you that since this was written, the two hospital service insurance companies have recognized the fact that the essential thing is to develop these organizations in order that people may have coverage, and that they should spend their efforts not in competition, but in development. Therefore, it has been agreed between the two organizations that the company organized in Sioux City will work the northwest part of the state, which comprises essentially one of the districts of the Catholic Church and one of the districts of the Methodist Church, and that inquiries in the remaining part of the state will be referred to Hospital Service, Incorporated. That will eliminate absolutely any competition for non-profit business.

Dr. M. C. Hennessy: When Dr. Shaw reported on this, he included Council Bluffs in the Sioux City area, and Dr. Moore did not. Which is correct?

Dr. Moore: The agreement arrived at between the two companies does not include Pottawattamie County. There is an area in the southwest part, I do not know the exact extent, in which they came to this conclusion: one of the hospitals has already indicated its desire to join the Sioux City group. The others have not given any consideration to the problem. Consequently, it was decided that neither concern would go into that territory until the hospitals themselves made the decision. The Council Bluffs hospitals will have to decide which company they wish to join.

Delegate: Are doctors' families permitted to join?

Dr. Moore: Yes.

Delegate: How many of the doctors in Polk County joined?

Dr. Moore: Approximately sixty joined as a group and paid their dues through the county society, as one payment, to Hospital Service, Incorporated, of Iowa.

Mr. Kingery: I believe there are ten or twelve more who joined through other organizations, such as the hospital.

Dr. Winkler: Some of the hospitals in northwest Iowa, which you have designated as falling in the Sioux City territory, have already paid their admission fee to Hospital Service, Incorporated. Is that returned to the hospital?

Dr. Moore: My guess is that by the time you return home there will be explanations of the procedure there for you. This arrangement was just made last week, when the Hospital Association was in session, and the company has not had time to work out the details.

Dr. Knipe: Are all the hospitals in the Sioux City area supposed to become associated with the Sioux City concern? Suppose a hospital in that particular area has a contract with the Des Moines concern.

Dr. Moore: You will be advised of the decision by the Des Moines concern. While I cannot speak with authority, I have no doubt that if you have paid premiums, they will be available for you, and then you will have to make the choice of either the Sioux City plan or no plan. They are not going to compete in that area.

Dr. Reed: Inasmuch as our hospital is in Decatur County, what chance has it?

Dr. Moore: The procedure for you to follow is for your hospital to make application to Hospital Service, Incorporated. The very nature of the problem is such that Hospital Service, Incorporated, cannot develop in all places simultaneously. As hospitals apply for participation, they will be advised how that participation may be obtained and concluded just as rapidly as possible.

Dr. Reed: Is it not a fact that the larger hospitals are taking this over, leaving the smaller ones to battle for themselves?

Dr. Moore: No, I do not believe that is the fact.

The situation is this: it costs a considerable amount of money to start this service, and obviously if it is to be successful, the company must obtain a considerable number of subscribers. To do that, its initial efforts must be in the areas where it can enroll subscribers as rapidly as possible, and at the least expense. Inevitably, that leaves the smaller areas to be approached at a later date. There is one thing, I think, which would be worth mentioning in this respect. The men who are doing this enrollment state that in their contacts here in Des Moines, particularly with employers, the employers have stated a very sincere wish to have professional services included. Of course, that cannot be done, but it is something to think about in the future. That is one of the most difficult points the company is encountering in competition with the commercial companies. The commercial companies which offer a combined hospital service and accompanying professional fees are very popular among some of the employers. Mr. Speaker, I move the adoption of this report.

The motion was seconded, put to a vote and carried.

Reports of Special Committees

The Speaker: Next are the reports of Special Committees of the House of Delegates. First, the Baldrige-Beye Memorial Committee, Dr. Weingart. (Absent.) Is anyone from that committee here? We will postpone that, and go on to the next committee. Committee on Child Health and Protection, Dr. Farnsworth.

REPORT OF THE COMMITTEE ON CHILD HEALTH AND PROTECTION

Your Committee on Child Health and Protection has for some time been making a study of the infectious and contagious diseases as they occur in the children of our state. We have been especially concerned with the incidence of smallpox in Iowa. As you well know, our record is very poor; more cases of smallpox have been reported in Iowa during the past ten years than in New York and its five adjacent states.

With these facts in mind, the Committee at its meeting March 3, 1939, voted to propose to the Iowa State Medical Society that it sponsor a program in which the county medical societies would simultaneously, and for a specified period of time, carry out a statewide plan for vaccination against smallpox. This plan was accepted by the House of Delegates on May 3, 1939. The two weeks between October 30 and November 11 were designated for the program. Your Committee felt that during this program, emphasis should be placed on the vaccination of the infant rather than the preschool or school child or adult, because if all infants were vaccinated during their first year of life, the other groups would be protected automatically. The work was to be the cooperative effort of the Committee on Child Health and Protection of the Iowa State

Medical Society, the State Department of Health, and various lay groups interested in health problems.

Each county medical society was asked to appoint one man to supervise details of the program in his county. Each society set its own fee for the service rendered, and carried out the program as it thought best. It was the hope of the Committee that the parent-physician relationship could be maintained insofar as possible. In cooperation with the State Department of Health, five advertisements to be used during the program were prepared and sent to each county society to be inserted during the campaign in local papers as each county chose. It was the feeling of the Committee that advertisements of this sort, sponsored by and for the county medical society, were ethical and in the public interest. The Committee was gratified to note the extensive use of these advertisements and to read the favorable editorial comments on the program. The cooperation of the various lay groups was very valuable and the Committee is grateful to the Parent-Teacher Association for its timely article in the October issue of its official publication, and to the Iowa Federation of Women's Clubs for its statewide help. While the exact figures are not available at this time, we are pleased to announce that during the program over 70,000 vaccinations were given. This is a good start but the work must be continued, because there have been outbreaks of smallpox in some counties since the campaign ended. We plan to continue our work against specific infectious and contagious diseases which can be prevented and eradicated. It is your Committee's hope that some day we may see every child protected against smallpox and diphtheria by the time he is one year of age.

This Committee's report last year mentioned the meeting with the 4-H Club groups, at which time we offered to prepare radio talks dealing with various illnesses and the rules of health. Copies of these talks were to be made available to the leaders of the 4-H Club groups in Iowa. Nine of these talks were prepared and delivered over the air by qualified members of your Society. With the cooperation of the State Department of Health, 4,600 copies of thirty-two pages each were made of these talks and delivered to the 4-H Club leaders for incorporation in their leaders' manuals. We plan to prepare future talks, but copies will be furnished only to state leaders.

The Committee expresses its approval of the extension of postgraduate obstetric education to include intramural as well as extramural courses, and believes that such a program under proper supervision should eventually be statewide in scope.

Your Committee recommends that county medical societies, either singly or in groups, devote at least one meeting each year to a program on obstetrics and pediatrics of the newborn; the speakers for this program to be furnished by the Speakers Bureau as a part of its postgraduate program.

Your Committee hopes this year to make a study of contact infections, the juvenile court system, and to work for better regulation of maternity homes.

H. E. Farnsworth, Chairman

Dr. Farnsworth: I would like to *move* the adoption of the report as published in the handbook, and then make a few supplementary remarks.

The motion was seconded, put to a vote and carried.

Dr. Farnsworth: I would like to say a few words in regard to the smallpox drive which was conducted last fall. Eighty-nine out of ninety-nine counties participated in the campaign; 69,250 smallpox vaccinations were given, and 18,505 diphtheria immunizations. That is a good start, but it does not nearly begin to cover the state and do the work we want to be done. The thing I want to bring out is that the children we want to protect, of course, are our youngsters, who should be protected against smallpox during the first year of their life, but in these 69,000 vaccinations that were done, 1.8 per cent were under one year of age, 3.6 per cent were in their first year, 4.25 in their second year, 4.0 per cent in the third, 5.0 per cent in the fourth, 8.0 per cent in the fifth, and 35.35 per cent were between six and ten years of age. The committee, in its March meeting expressed the hope that the House of Delegates would approve a continuation of the program again this fall, with the thought that eventually we can exert enough pressure on our legislature for enactment of legislation calling for compulsory vaccination against smallpox. You probably are well aware of the fact that in New York, and the five adjoining states, with a population of 13 and a fraction per cent more population than the state of Iowa, there is much less smallpox than in the state of Iowa. We are rather a black spot in that respect.

I also want to announce to the House of Delegates that the Committee on Child Health and Protection has arranged for a postgraduate course on care of the premature and newborn this fall at the university, a three- to four-day postgraduate course, which I think will be well worthwhile. The details of that will be announced later during the summer through the JOURNAL.

The committee has also been interested in the summer round-up. We have worked and hoped that we could make it more of a physician-patient proposition, and that these examinations might be done in the physician's office rather than en masse in the schoolhouse or some hall where the children are marched by in file, and the doctor makes a physical inspection rather than a physical examination. Those of you who saw the moving picture earlier this afternoon need no other comment.

I *move* the adoption of the supplementary report, Mr. Speaker, and ask the approval of the House of Delegates to continue the smallpox campaign again this fall.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the Fracture Committee, Dr. Conzett.

REPORT OF FRACTURE COMMITTEE

During the past year the Fracture Committee has continued its activities along the same lines as in the past. It has urged that every county medical society devote one meeting each year to a discussion of the care of fractures, and this has been done in many counties through the efforts of the fracture delegates. One new film on fractures was made during the year to complement those the Committee already owned. These have been sent to many societies for showing, and are available to others through the central office. The compilation of data on gas gangrene cases has been continued under Dr. Knowles' supervision. The third annual all day fracture clinic was held in Des Moines, November 8; approximately 200 physicians from all parts of the state attended. Speakers included five Iowa physicians and three from out of the state. This all day meeting appears to be growing in popularity, and seems to stimulate interest in fracture treatment. The Committee was aided in its work by an allowance from the Board of Trustees both for holding the clinic and for purchasing additional fracture films. We are grateful for this aid, and trust that the work of the Committee will merit continued support.

Donald C. Conzett, Chairman

Dr. Conzett: Mr. Speaker, I *move* the approval of the report as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Next is the report of the Historical Committee, Dr. Bierring.

REPORT OF THE HISTORICAL COMMITTEE

During the past year this committee has endeavored to collect historical data to complete the his-

tory of medicine in Iowa insofar as possible. There is need for additional information on the development of medical education and changes in medical practice, and for more complete biographic records of the pioneer Iowa physicians. As the older practitioners pass from the stage it becomes increasingly difficult to fill in the lapses. The committee, therefore, takes this opportunity to appeal to all members of the State Society who can provide accurate and historical records to do so, in order that the history of Iowa Medicine may be transmitted properly to future generations.

Walter L. Bierring, Chairman
Frank M. Fuller
John T. McClintock
R. T. Lenaghan
Tom B. Throckmorton
William Jepson

Dr. Bierring: Mr. Speaker, I *move* the approval of the report as published in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: The Licensing Committee.

REPORT OF THE LICENSING COMMITTEE

The committee appointed by the House of Delegates in 1939 to consider the matter of unlicensed physicians in state institutions and state departments met in Des Moines March 6, and begs to make the following report:

After careful consideration of all of the problems involved, your Committee reports that in its best belief all physicians now employed by the state have been licensed or are now in the process of being licensed. The authorities charged with the responsibility for this problem have sent individual notices to all unlicensed physicians employed by the state to appear for examination for licensure on March 4, 5 and 6, and have warned them that any who do not appear for this examination, who expect to remain in the state, will be proceeded against under the medical practice act for practicing without a license. So far as we know or have any means of finding out at this time, all of the physicians in question are complying with this letter.

A very careful review of a great deal of correspondence between state authorities and state institutions extending over a period of years shows that this problem has been under consideration and that serious attempts have been made to bring about the licensing of every practicing physician. We appreciate the fact that there have been many problems which have not been easy of prompt solution, and we feel that those who have had the responsibility for protecting the people of the state have worked faithfully to secure compliance with all laws having to do with licensure. We also wish to impress upon the House of Delegates and the individual members of the State Society that the responsibility for seeking enforcement of the medical practice act lies no more on the shoulders of official bodies than it does upon the individual members of the State Society. Your Committee feels that the House of Delegates has very properly en-

deavored to recognize this obligation, and believes that every organization charged with the responsibility will appreciate the help and cooperation of the State Society.

E. E. Magee, Secretary
M. C. Hennessy
Frank M. Fuller, Chairman

Dr. Magee: I *move* the adoption of the report as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Medical Library Committee, Dr. Throckmorton.

REPORT OF THE IOWA STATE MEDICAL LIBRARY

I am happy to state that there has been an increased use of all departments of the library. Two hundred more people used the library during 1939, and three thousand more pieces of literature were consulted. Statistics for 1939 are as follows:

Pieces of literature loaned.....	18,290	
Pieces of literature consulted in library.....	14,381	32,671
Requests for literature.....	3,686	
Patrons served in the library.....	3,216	6,902
Bibliographies prepared		37
Letters written	1,412	
Postal cards written.....	2,371	3,783
Telephone calls		1,034
Accessioned volumes in library.....		23,123
Periodicals received by paid subscription	186	
Periodicals received by gift subscription	78	264
Reprints		28,127
Gifts to the Library (books, journals and reprints)		18,127
Gifts to Other Libraries (books and journals)		5,010
Borrowed from Surgeon General's Library for Doctors		62
Borrowed from Other Libraries for Doctors..		12

Jeannette Dean-Throckmorton, Chairman

Dr. Throckmorton: I have a supplementary report which is an interesting one and takes us to foreign countries. In the *Medical Journal* of Australia I noticed that the library of the Royal Australasian College of Surgeons planned a new service of mailing material to its members. Observing that this was very similar to the service I give to the Iowa doctors, I wrote to the president, Sir Hugh Devine, congratulating him and the College, and stating that his members doubtless would appreciate the mailing service as greatly as did the Iowa medical profession. I asked if he had complete files of the *Journal of the American Medical Association* and the *JOURNAL OF THE IOWA STATE MEDICAL SOCIETY*, duplicates of which I had and to which he was welcome if he paid transportation. His answer stated that he had only the current year of the *Journal of the American Medical Association* and no copies of the Iowa *JOURNAL*. I looked over my duplicates at once, and asked a number of doctors to do the same and send to me the *JOURNALS* they did not care to keep. The avalanche that resulted far exceeded my expectations!

Australia was sent several boxes of material, and in return they sent Australian publications to the Iowa library, one box of which at the lowest estimate was worth \$800, yet they cost the state of Iowa only \$20 for transportation. We have just received and are now checking in a box from Australia whose contents I value at \$200. May I read a letter recently received from the Royal Australasian College of Surgeons:

Dear Dr. Throckmorton:

The three cases of books and journals which you advised that you were sending have now reached us safely and we are delighted with the contents.

All members of my Council desire me to express to you their very deep appreciation for this most valuable gift and for the interest which you have shown in our work.

I assure you my Council is deeply grateful to you for the practical help which you have rendered to the Gordon Craig Library.

With kind regards,

Yours sincerely,

H. G. Wheeler, Secy.

A similar line of action was taken with St. Thomas's Medical School of London, whereby duplicates were exchanged at no cost except transportation. May I read a letter recently received from St. Thomas's Medical Library:

Dear Dr. Throckmorton:

We have just received the two boxes of *American Journal of Medical Science*, and are very grateful indeed to you for this gift. It makes our set almost complete for the past forty years.

I am sending off the same two boxes filled with old *Lancets*, *British Medical Journals*, *Proceedings of the Royal Society of Medicine* and *Journal of Physiology*, which I hope may be of use to you.

We are very short of staff at the present time, and I am afraid that there has not been time to put these in order; but I hope you will understand the circumstances. I will keep your list by me and put aside anything that may be of use to you.

Again thanking you for your kind gift,

Yours sincerely,

Leslie T. Morton, Librarian.

In the two boxes he sent to us were thirty volumes of the *Journal of Physiology*, which costs \$7.25 per year; seven volumes of the *Lancet* which is \$12.50 per year; and thirty volumes of the *Proceedings of the Royal Society of Medicine* which costs \$26.50 a year. This material at the lowest estimate was worth \$660, yet it cost the state of Iowa only \$20 for transportation.

The London School of Hygiene and Tropical Medicine likewise exchanged with me, and may I read their letter received last week:

Dear Dr. Throckmorton:

Thank you for your letter of 11th March. You owe us nothing for transportation of the books we sent, as these were taken round by hand to the London agents of the Smithsonian Institution, which forwarded them free of charge to the States. We therefore had no expenses.

Yours sincerely,

Cyril C. Barnard, Librarian.

The next letter that I wish to read is from King's College, Newcastle-upon-Tyne, England, and runs thus:

Dear Dr. Throckmorton:

You will be thinking that King's College Library, including myself, must have been removed by an air-raid, because of the delay in acknowledging your last consignment of periodicals. I must make the war my excuse.

The boxes of journals mentioned in your letter of 23rd May arrived per the Smithsonian Institution in July, while I was on vacation.

Unfortunately, on my return from vacation in August and before I could get them sorted out and checked, we were involved in the war. As I was a trained member of the local air-raid precautions organization, I was mobilized some days before the declaration of war.

I have only recently returned to my normal work, and it was not until last week when two more members of the Library Staff were released from air-raid precaution duties that I was able to check up on your gifts. Your gift of periodicals fills in quite a number of gaps in our collection, as well as adding many new titles. I am sorry that at the moment we cannot offer you an equivalent return. Owing to reduced staff and funds and limited hours of opening due to the black-out, we are obliged to reduce our library activities to the essential loan and desk work. When the war is over we propose to compile a revised list of duplicates for your selection, as well as a list of desiderata.

I think under the circumstances it would be better for us to settle the transportation charges to date. I have therefore much pleasure in sending you herewith draft No. 991690 on New York, drawn in your favor, for \$18.64.

Your periodicals make quite a good show; we have reserved almost a whole stack range for them.

With kindest regards and many thanks,

Yours very sincerely,

Edwin F. Patterson, Librarian.

Following the request in our Iowa JOURNAL last April for medical literature for war-torn China, I was able to send forty boxes of books and journals from the duplicates which you doctors generously gave to me. These boxes were sent in July via Smithsonian Institution in Washington, D. C. Transportation charges had to be paid from Des Moines to Washington, from whence they were shipped to China without expense to me. The transportation charges were \$44.93 of which \$25 were paid by four doctors of the Rockefeller Institute for Medical Research in New York City; Dr. Donald Van Slyke, Dr. Carl Ten Broeck, Dr. Alfred Cohn and Dr. Louise Pearce. I added \$10 and the remainder was made up by donations from friends.

May I read you the letter received the 17th of April, dated seven weeks earlier, from the National Library of Peiping, Kunming, China?

March 1, 1940.

Librarian, Iowa Medical Library.

Dear Sir:

We have pleasure in acknowledging the receipt of a number of medical publications which you have so kindly sent to our Hongkong office.

On behalf of the National Library, I should like to express to you how very grateful we are for this exceedingly valuable and interesting addition to our Library.

As these publications are exceedingly valuable to our students and investigators, it will certainly be a pleasure to us to call the attention of our readers to this interesting collection. We shall place them in prominent positions in our Library where they will no doubt be used to the best advantage. At a time when Chinese medical students are working under great handicaps, your timely assistance is particularly appreciated.

It must be a source of gratification for you to learn that in spite of the undeclared war, scientific and technical work of permanent nature is going forward in China.

With the removal of medical schools and hospitals from the coastal cities to the interior of China as a result of Japan's aggression, Kunming has become one of the important centers of medical education and research.

We shall be exceedingly grateful to you if you could continue to send us your duplicate materials in the field of medicine at the above address via Haiphong. If you have large consignments to send to us, please send them via International Exchange Service, Smithsonian Institute, Washington, D. C.

With renewed thanks for your valuable assistance,
Yours sincerely,

T. L. Yuan, Acting Director.

These letters bring us to the reality of war; we realize for the moment, here in our safety, surrounded by congenial friends and scientific conversation, that war exists overseas, tearing and disrupting and making impossible such scientific meetings as this. We have much for which to be thankful.

None of the above exchanges and gifts would have been possible if it had not been for the generosity of you doctors. May I again thank you. You will note in the handbook that you gave 18,127 pieces last year, composed of books, journals and reprints. Although it is true that many of these pieces had ceased to have value to you personally, they do have value elsewhere; after filling our files we were able to give 5,010 unbound journals and books to other medical libraries. The JOURNAL OF THE IOWA STATE MEDICAL SOCIETY compares well with other state journals, in my opinion, and I wish to see files of it in the medical libraries of the United States, and in the larger medical libraries abroad. Thus I need your old copies. Your splendid spirit of cooperation and your generosity have assisted me greatly. Will you please take word back to your county societies that I would like old medical journals and will pay transportation on them to Des Moines. Just write me for shipping instructions first. Have you any pictures of medical interest that you could spare for the archives of the Iowa State Medical Library, where they will be preserved for future generations? If you have, I should like to have them.

Dr. Throckmorton: Mr. Speaker, may I move that these reports be accepted?

The motion was seconded, put to a vote and carried.

The Speaker: Next is the report of the Committee on Military Affairs, Dr. Graber. (Absent.)

REPORT OF THE COMMITTEE ON MILITARY AFFAIRS

The Committee on Military Affairs has held no meetings since the annual session in 1939, and has nothing to report.

Harold E. Graber, Secretary

Dr. L. F. Hill: I move that the report be accepted as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Committee on Pneumonia Control, Dr. Fred Smith.

REPORT OF COMMITTEE ON PNEUMONIA CONTROL

The Advisory Committee on Pneumonia Control has had four meetings up to January 1, 1940. As a result of these meetings a small booklet on the "Diagnosis and Treatment of Pneumococcus Pneumonia" was prepared and mailed by the Iowa State Department of Health to each practitioner in the state. It is our plan to keep the medical profession of the state in touch with the developments in the treatment of pneumonia through publications of this sort and, in cooperation with the Speakers Bureau, by various other means.

Fred M. Smith, Chairman

Dr. Smith: In addition to what was reported in the handbook, the Pneumonia Control Committee has assisted in various county medical meetings and also cooperated with the Speakers Bureau. You probably also recall that in the book on "Diagnosis and Treatment of Pneumonia," the importance of typing every case possible was stressed. We would like to emphasize this point again, because we have an idea that quite a few of the doctors may be reducing the treatment of pneumonia to treatment with sulfapyridine. I believe, if you will go over the figures in the exhibit of the State Department of Health, you will note that serum is frequently advisable. Certainly, in all the discussions of pneumonia I have heard in the last year, it has been emphasized that there are certain instances in which the combined treatment by sulfapyridine and serum is advisable. If this committee is continued next year, we hope to supplement the booklet which was mailed to each one of the physicians last year, and also promote our cooperation with the Speakers Bureau, and, in any way we can, further our objective.

Dr. Woods: In view of the fact that Dr. Smith is not a member of the House of Delegates, I move that we accept this report of the Committee on Pneumonia Control.

The motion was seconded, put to a vote and carried.

The Speaker: Committee on Public Relations, Dr. Stroy.

REPORT OF COMMITTEE ON PUBLIC RELATIONS

During the past year, although adhering to no definitely planned program, your Committee has endeavored to guide and advise along ethical lines such lay groups as were contacted. A particular effort was made to impress all groups who were planning programs of a general nature with medical features included, with the necessity for contacting the local county medical society before such a program was carried out. In lay problems of a more

general nature as far as the state as a whole was concerned, an effort was made to have such groups confer directly with the State Society before formulating a program of medical significance. On the whole these efforts on the part of the Committee were largely successful.

Your chairman met with the Committee on Child Health and Protection to formulate a program for statewide smallpox vaccination. This program was satisfactory, but did not reach all susceptible individuals. It will need further work from year to year.

H. E. Stroy, Chairman

Dr. Stroy: Mr. Speaker, I *move* the adoption of the report, as printed in the handbook.

The motion was seconded, put to a vote and carried.

The Speaker: Committee on Scientific Exhibits, Dr. Gibson. (Absent.) I will entertain a motion to approve the report, as printed in the handbook.

REPORT OF THE SCIENTIFIC EXHIBITS COMMITTEE

Fifteen scientific exhibits were prepared and presented at the 1939 annual meeting of the Iowa State Medical Society. These exhibits covered a wide range of subjects and gave a good picture of work being carried on over the state. In addition, the Iowa X-Ray Club prepared a very interesting exhibit of x-ray films which was sufficient to fill six view boxes. As

a further adjunct to the scientific section, moving picture films were presented daily. The committee endeavored to procure a wide variety of films so that there would be something of interest to every physician attending the showing. The attendance at the exhibits was very good, and the committee felt that much interest was shown in the section.

Douglas N. Gibson, Chairman

Dr. L. F. Hill: I *move* the report be approved, Mr. Speaker.

The motion was seconded, put to a vote and carried.

The Speaker: Woman's Auxiliary Advisory Committee, Dr. Hickenlooper. (Absent.) Are there any of the other members of that committee present? If not, I will consider a motion to accept the report of the Woman's Auxiliary Advisory Committee as printed in the handbook.

REPORT OF THE WOMAN'S AUXILIARY ADVISORY COMMITTEE

As chairman of the Advisory Committee I wish to report that \$50.00 was allowed the Woman's Auxiliary to help defray expenses of the state meeting, and an additional \$50.00 was granted to aid them in organizing additional units. The Auxiliary has made progress in the past year.

C. B. Hickenlooper, Chairman

Dr. L. F. Hill: I *move* it be approved, Mr. Speaker.

The motion was seconded, put to a vote and carried.

Reports of Committees of the Council

The Speaker: Reports of Committees of the Council. Speakers Bureau Committee, Dr. Priestley.

REPORT OF THE SPEAKERS BUREAU COMMITTEE

To the Members of the Council:

During the year 1939, the Speakers Bureau conducted eight regular postgraduate extension courses in six councilor districts throughout the state. The second and fourth councilor districts entertained spring programs in general therapeutics, and medicine and surgery. Forty-four physicians enrolled for the second district course in Mason City, and fifty-one attended the fourth district course held in Ida Grove, Cherokee, Sac City and Carroll, each of which sites was host to two meetings. Marshalltown, in the sixth councilor district, was the center for a series of nine monthly lectures in 1939. This course marked the second year in which the Speakers Bureau has arranged programs for the physicians of this community. A total registration of sixty-eight was attained for the meetings.

In the fall, six weeks' courses were conducted in the first, second, third, fourth and tenth Councilor Districts. The first district held its meetings in Charles City, Oelwein and Decorah on a bi-monthly basis and an enrollment of twenty-four was reported

for the lecture series. Algona, in the second district, was host to forty-one attending physicians, and fifty-eight members responded to their chairman's solicitation for the third district course which was conducted in Sheldon. This mark set a new postgraduate course attendance record for the northwestern corner of the state. Storm Lake and Sac City in the fourth district, and Chariton, Corning and Osceola in the tenth district, enrolled twenty-six and thirty physicians respectively for their six weeks' instruction.

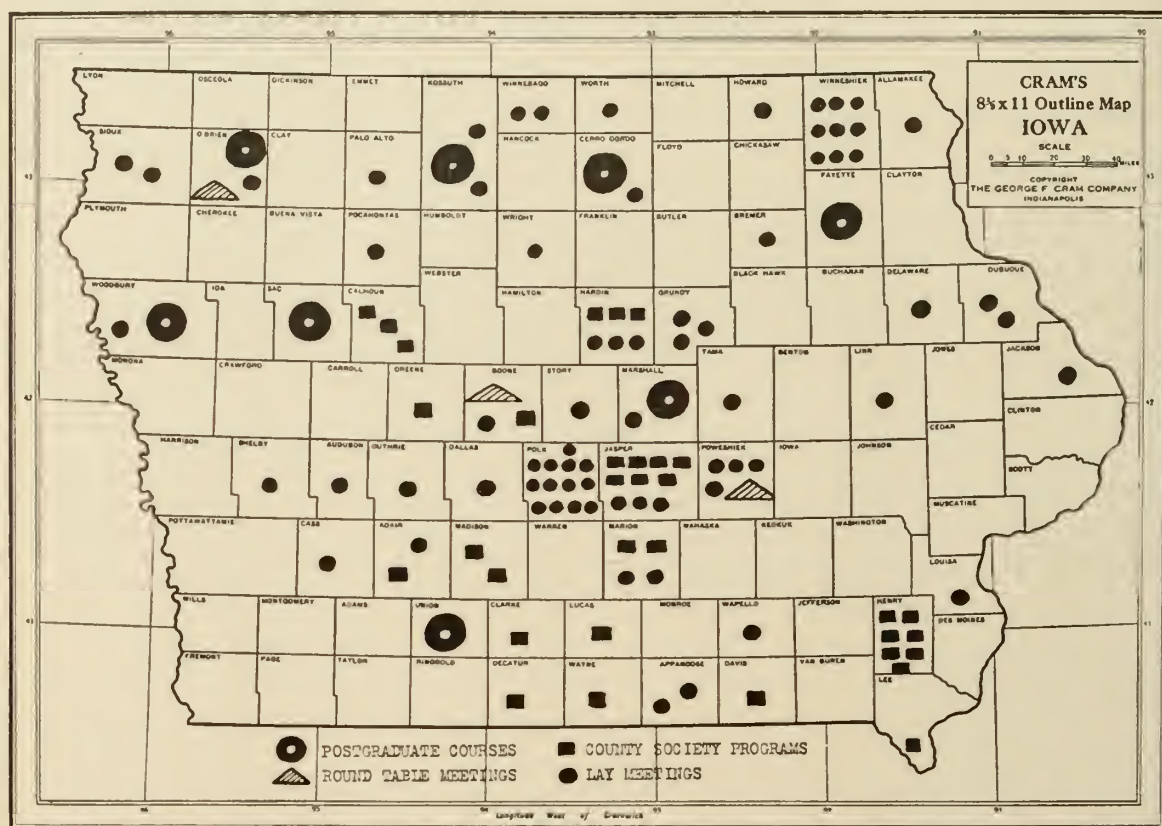
Speakers for all postgraduate lectures throughout the year were selected on the basis of their knowledge of the subject and their ability to present the material in a practical manner to the general practitioner. Lecturers included members of the faculty of the College of Medicine at Iowa City and practicing physicians in the state, as well as Omaha, Chicago, St. Louis, Rochester and Minneapolis physicians.

In August, at a meeting of the representatives from the Maternal and Child Health Division of the State Department of Health and the Speakers Bureau, it was decided to substitute round table discussions on maternal and child health for the "refresher" courses in pediatrics and obstetrics previously held. Under this new plan for postgraduate instruction, a round table conference was carried

on by an obstetrician and pediatrician covering numerous and varied diseases in obstetrics and infancy. Case histories were given to illustrate points in the discussion, and the local audience presented case histories of its own for review by the round table. The subject, "Prematurity from the Obstetric and Pediatric Standpoint," opened the first series of round table meetings. As many as possible of the disturbances in the mother which tend toward the birth of a premature infant were discussed from the obstetric angle. From the pediatric point of view, opportunity was given to discuss the many problems associated with nutrition and management of the premature infant. Before the close of the year, the Speakers Bureau scheduled round table discussions for Grinnell, Sheldon and Boone. Reports from all

to prepare the material and graciously consented to devote their time and efforts toward making the activity a success. Early in the fall, the series of articles was edited and printed by the State Department of Health, and incorporated into 4,600 4-H Club Leaders' Manuals for distribution throughout the state. In acknowledging their appreciation of the work, the 4-H Club officials were especially enthusiastic in their praise of the series, and conveyed their assurance that the contribution would be of inestimable value in future health programs in the state.

In April, the Speakers Bureau was proud to announce that it would be among the exhibitors at the Ninetieth Annual Session of the American Medical Association held in St. Louis. "Ten years of Post-



three centers highly commended the procedure employed in this type of instruction and indicated it would create exceptional interest throughout the state in future years.

In compliance with a request made by the officials of the 4-H Clubs of Iowa, the Speakers Bureau, in cooperation with the Committee on Child Health and Protection, arranged a series of health talks which were designed primarily to benefit the girls and boys of the state 4-H organization. These talks were presented every other week on the Iowa State Medical Society broadcast over radio station WSUI and WOI for a period of eighteen weeks. Nine practicing physicians in the state were requested

graduate Medical Education in Iowa" was selected as the title of the display, and the progress which Iowa has made since 1929 in the field of postgraduate medical education was the subject upon which the exhibit was based. In order to present an adequate picture of the work which has been accomplished, the exhibit was comprised primarily of maps which designated the locations of the courses, the programs presented, the lecturers and the enrollments attained for each year. In addition, the various counties from which physicians traveled to attend the courses were specified. The exhibit marked the first of its kind for the Speakers Bureau, and we felt highly honored that our endeavors in the line

of postgraduate medical education merited their display at a national meeting. Similar exhibits were shown by North Carolina, Oklahoma, Tennessee and Virginia. Many Iowa physicians, as well as numerous out-of-state men, visited the booth during the five day interval; exceptional interest was shown in the material presented, and the reactions to the exhibit were complimentary. The Speakers Bureau was extremely gratified with the attendance at the booth and feels that through its participation it gained not only recognition, but a more thorough knowledge and a clearer understanding of the operation, progress and development of similar endeavors in other states.

Scientific programs for thirty-three county society meetings were arranged by the Speakers Bureau in 1939. Forty physicians participated in the presentation of these programs.

During the course of the year, seventy-two talks were given to various lay organizations throughout the state. This service was extended to Parent-Teacher Associations, women's clubs, service clubs, high schools and colleges.

Fifty-two radio talks were delivered over WSUI in Iowa City and WOI in Ames on our regular broadcast. The Speakers Bureau furnished copies of these radio addresses upon request, and 593 radio listeners, in all parts of the middle west, wrote for this material in printed form.

The Speakers Bureau again cooperated in the Sixth Annual Health Essay Contest, sponsored by the Woman's Auxiliary to the Iowa State Medical Society. "Good Health and How to Maintain It" was the subject selected for the contest, and hundreds of exceptionally well prepared manuscripts were submitted. The winner of the contest was awarded the pleasure of delivering his essay on the Iowa State Medical Society's radio broadcast, as a guest of the Speakers Bureau.

At the request of the Iowa Federation of Women's Clubs, the Speakers Bureau planned nine radio programs on various phases of health for presentation over Station KSO in Des Moines. The series of talks, entitled "Keeping Well Folks Well," was sponsored by this organization, and enjoyed a great deal of popularity during the year.

Late in the summer of 1939, members of the Speakers Bureau Committee met with the Public Relations Director of the State Department of Health to discuss the value of the weekly health bulletins which were being sent to various newspapers throughout the state for publication. For several years the Speakers Bureau, as well as the State Department of Health, has maintained this activity as part of its service to the lay public of the state. Through a press clipping bureau, a complete record had been kept of the newspapers publishing the articles. It was felt that the health releases were reaching a sufficient number of readers to warrant their continuance. However, due to the fact that the State Department of Health was simultaneously submitting similar bulletins to a far greater number of newspapers in the state, and receiving a much

higher rate of publication for each release, it was agreed that we should suspend our activity in this project and direct our efforts to other fields of endeavor which would benefit the laity to a greater degree.

The accompanying map depicts the accomplishments of the Speakers Bureau in a graphical manner. However, facts and figures cannot reveal the principal factor which is responsible for the ultimate success of our endeavors. Our work could not progress without the enthusiastic support which the physicians of the state steadfastly give.

The financial report of the Bureau is given, first for the year 1939, and finally for the entire period of its existence.

Account for 1939

Income

Receipts from postgraduate courses.....	\$ 1,679.58
Travel expense refund.....	8.00
Sale of cancer manuals.....	79.17
	<hr/>
	\$ 1,766.75
Allowed from dues.....	1,800.00

Total Speakers Bureau budget.....\$ 3,566.75

Expenditures

Salaries	\$ 1,492.50
Travel expense for speakers.....	783.90
Postgraduate course travel expense.....	1,254.67
Radio talks	74.62
Stationery, printing, telephone, etc.....	772.39
Miscellaneous	49.87
	<hr/>
Total	\$ 4,427.95
Deficit for 1939.....	\$ 861.20

Total Receipts 1930 Through 1939

1930	\$ 2,780.00
1931	3,939.34
1932	2,805.58
1933	4,850.70
1934	5,550.90
1935	6,351.97
1936	4,931.03
1937	4,842.24
1938	5,282.42
1939	3,566.75

Total\$44,900.93

Total Disbursements 1930 Through 1939

1930	\$ 306.26
1931	3,949.97
1932	5,855.70
1933	3,744.06
1934	4,316.30
1935	5,435.56
1936	4,360.13
1937	5,741.55
1938	5,493.99
1939	4,427.95

Total\$43,631.47

Each year finds the Speakers Bureau accumulating dividends—dividends which represent returns on investments in medical education made solely for the benefit of the laity, the physicians and the State

Society. Our constant efforts to improve methods of operation and introduce new fields of activity, thus enhancing our resources, should insure additional progress and achievement in the future.

Joseph B. Priestley, Chairman
Walter R. Brock
T. Frank Hersch
Earl B. Bush
Sydney D. Maiden
James Dunn

Dr. Priestley: You will find the report of the Speakers Bureau in the handbook. There is no supplementary report, and I move it be accepted as printed.

The motion was seconded, put to a vote and carried.

The Speaker: Executive Cancer Committee, Dr. Hennessy.

REPORT OF THE EXECUTIVE CANCER COMMITTEE

The Executive Cancer Committee, at its first meeting in the late summer of 1939, discussed the cancer situation in Iowa and decided that any program that was offered should be along three major lines: first, lay education; second, professional education; and third, making some provision for the diagnosis and treatment of individual cancer patients in the state. The committee was unanimous in its belief that the program undertaken by the first Executive Cancer Committee in cooperation with the Women's Field Army to educate the public in the simple facts about cancer has been excellent in its results, and that this program should be continued and extended to all parts of the state. With this thought in mind, it was decided, with the approval of the Council of the Iowa State Medical Society, that the Executive Board of the Women's Field Army should consist of Mrs. A. V. O'Brien, Commander, three members of the Executive Cancer Committee (Dr. H. W. Morgan of Mason City, Dr. D. F. Ward of Dubuque, and Dr. M. C. Hennessy of Council Bluffs), and Dr. E. D. Plass of Iowa City, and that this Board should direct lay education for the ensuing year.

In order to formulate plans for carrying out the second and third parts of our proposed program, the Executive Cancer Committee met with Dr. L. A. Scheele of the United States Public Health Service who is now attached to the National Cancer Institute. Dr. Scheele explained various state plans and furnished material regarding them, and after a long discussion, the committee felt it might formulate a plan similar to those in some states. A definite need for professional education has been noted as a result of the lay education program. The average physician sees only a few cases of cancer each year, and naturally cannot diagnose and treat those he does see as well as he might because he does not know all the details of the many diagnostic and therapeutic problems involved. Often he lacks proper laboratory and x-ray and radium facilities. The committee felt that the cancer manual issued by a previous cancer committee had been of great assistance

to physicians, but that it was not enough. Experience is the best teacher, and it can be gained through the establishment of cancer clinics for diagnosis and treatment in various parts of the state.

Your committee cannot provide a concrete, final program at this time. The best we can do is to give a synopsis of what we think can be done. We are making surveys and plans for a definite program. We do not know whether it is advisable to ask for legislation to establish these clinics. We are agreed that the plan should be the joint effort of the College of Medicine, the State Department of Health and the State Medical Society. We recognize that both the College of Medicine and the State Department of Health have interests that must be safeguarded in any plan that is finally adopted. We realize that the program must not interfere with the supply of sufficient teaching material to the University, and that it must not infringe upon the definite duties of the State Department of Health. We know that a program along the lines suggested involves the spending of money. A survey of the possible sources of funds is under consideration. The committee expects to meet with representatives of the College of Medicine, the State Department of Health, and the Legislative Committee of the State Society before finally approving any program. It will then present its findings to the Council, and we hope to bring to the House of Delegates at its May meeting a workable plan which has the approval of all of the above groups.

M. C. Hennessy, Chairman
A. W. Erskine
W. H. Gibbon
H. W. Morgan
D. F. Ward

REPORT OF THE WOMEN'S FIELD ARMY

The following report of activities of the Iowa division of the Women's Field Army was prepared by Mrs. A. V. O'Brien of Iowa City, Commander.

M. C. Hennessy, Chairman
Executive Cancer Committee

Women's Field Army Activities July 1, 1938 to July 1, 1939

The Women's Field Army program was carried on in ten of the eleven councilor districts in Iowa. Two hundred forty-nine cities and towns of the 1,223 in Iowa were organized in 1939. Newspapers gave the program 1,122 inches of publicity.

Two letters were mailed to all contributors in the 1938 campaign; the first gave in detail the expenses of the 1938 campaign; the second was sent just prior to the 1939 drive for funds. Highlights of the 1939 campaign are as follows: 191,470 pieces of literature were distributed during the campaign and at county and state fairs; 129 lectures were given by physicians; 238 talks were given by Field Army workers; 31 radio talks were broadcast; and 14 lectures were given to high school students. Five hundred copies of Dr. C. C. Little's book "Civilization Against Cancer" were purchased and presented to

the 385 libraries in the state and a copy given to all captains and vice-commanders.

Financial Statement

Total 1938 campaign funds.....\$6,872.49

Expenditures

30% to National.....	\$1,919.59	
Posters	312.37	
Printing	216.26	
Materials from National.....	605.42	
500 copies "Civilization Against Cancer"	429.71	
Postage (this includes 7 press releases mailed to 562 papers).....	253.71	
Publicity Director (Part time)....	150.00	
Traveling Expense	273.28	
Part time Secretary.....	148.85	
Office supplies	87.91	
Stationery	79.88	
Telephone	71.79	
1938 Audit	15.00	
District Expense	933.96	\$5,497.73

Balance on hand July 1, 1939\$1,374.76

Dr. M. C. Hennessy: Mr. Speaker and Members of the House of Delegates: I am very sorry, but I have a supplementary report. We hoped to be able to get this to you before this meeting, but it was not finished in time for you to be furnished with copies. First, I move the acceptance and the adoption of the report of the Executive Cancer Committee as it appears in the handbook, and also the report of the Women's Field Army.

The motion was seconded, put to a vote and carried.

Dr. Hennessy: On February 29, 1940, a meeting was held in Iowa City, those present being Doctors H. Dabney Kerr, H. P. Smith, and Frank Peterson, Cancer Committee of the University Hospitals; Mr. R. E. Neff, Administrator; Dr. E. M. MacEwen, Dean of the Medical School; and Doctors M. C. Hennessy and A. W. Erskine, representing the Executive Cancer Committee of the State Medical Society. Dr. Hennessy explained the problem of the Executive Cancer Committee, which is charged with the task of formulating a state program for cancer control. He said that the committee is unanimous in the belief that the present programs of lay and professional education should be continued and expanded, and also that the committee is considering formulating some statewide plan for the care of those indigent cancer patients (probably fifteen hundred a year) who are not now and cannot be committed to the University Hospitals. He said that the committee believes the establishment of several cancer units in given cities would be valuable not only for the diagnosis and treatment of such indigents, but as a means of educating the profession. There was a short discussion of methods of financing such units by federal and state funds. Dr. MacEwen stated it was his impression that all of the funds available under Title VI of the Social Security Act had been matched by the state and were being used. Dr. MacEwen also mentioned incidentally that Congress had recently passed a law requiring employees paid by federal funds to be under civil service.

Members of the Executive Committee stated that the Committee is unanimous in its desire to safeguard the teaching needs of the medical school. The discussion of the present material as shown in Tables I and II followed. It was agreed that the number of

TABLE I

Preliminary Report of University Hospital

Number of Registered Cancer Patients for 1939,
Both Indigent and Pay Patients

Bladder	48
Bone	14
Brain and Cord.....	28
Breast	100
Bronchiogenic carcinoma	2
Cervix	81
Colon	28
Esophagus	13
Eye	18
Fibrosarcoma	6
Gallbladder	2
Kidney	14
Larynx	10
Lung	17
Liver	8
Leukemia	19
Lymphosarcoma (Hodgkins' disease).....	15
Malignant lymphoma	9
Mouth	
Cheek	9
Floor	1
Lip	46
Lower jaw	2
Upper jaw	2
Palate	7
Tongue	8
Tonsil	10
Melanoma	4
Nasal accessory sinus.....	2
Nose	3
Ovary	24
Pancreas	8
Parotid	3
Penis	3
Pharynx	6
Prostate gland	104
Rectum	35
Skin	76
Stomach	59
Submaxillary gland	3
Testicle	3
Thyroid gland	5
Uterus	26
Vagina	7
Vulva	1
Unclassified	15
TOTAL	804

TABLE II

University Hospital

Number of Indigent Cancer Patients Registered
for 1939

Bladder	17
Bone	10
Brain and cord.....	18
Breast	65
Bronchiogenic carcinoma	2
Cervix	62
Colon	16
Esophagus	7
Eye	15
Fibrosarcoma	6
Gallbladder	2
Kidney	3

Larynx	5
Lung	10
Liver	4
Leukemia	13
Lymphosarcoma	7
Malignant lymphoma	6
Melanoma	4
Mouth	
Cheek	5
Lower jaw	1
Upper jaw	2
Palate	6
Tongue	5
Tonsil	6
Lip	36
Nasal accessory sinus.....	1
Nose	1
Ovary	17
Pancreas	5
Parotid	1
Penis	2
Pharynx	4
Prostate gland	33
Rectum	27
Skin	52
Stomach	39
Testicle	3
Thyroid gland	5
Uterus	18
Vagina	4
Unclassified	6
TOTAL	534

cases is sufficient and the distribution of cases according to diagnosis is fairly satisfactory. It has improved considerably since 1931, there being about one hundred cases of cancer of the breast last year as compared with forty-five in 1931, and about seventy-five cases of skin cancer as compared with seventeen in 1931. There were forty-six cases of cancer of the lip last year. All the members of the faculty agreed that the ideal distribution is that which approximates the distribution of cancer cases in private practice. They also all agreed that a discouragingly large number of late and hopeless cases are sent to the University giving the students the idea that cancer is a hopeless disease. They mentioned the desirability of not only an adequate number of cases but also a method of selection which would insure a good distribution and the inclusion of a considerable number of early curable cases. It was pointed out that the University must expect a certain number of cases, for example, of brain and cord tumors which cannot be treated in other communities. On the whole, however, it was agreed that the number and kind of cases are satisfactory except that there are not enough early cases. Dr. Peterson spoke of the undesirability of the University being overloaded with advanced, inoperable hopeless cases, and favored some method of improving present conditions. Dr. MacEwen spoke of the clinics for crippled children which were held throughout the state for diagnosis, nothing being done in the way of treatment. He said that the lay education campaign should not be too far in advance of the provision of treatment and diagnostic facilities; in other words, that we should see that "desire doth not outrun performance." The Cancer Committee of the University Hospitals, basing its

figures on the number of cases which had been collected up to date, estimated that it would take 1,000 to 1,100 cases per year to meet the necessary needs of the University for educational purposes.

In a discussion of the establishment of the units it was asked how they would be certified. Dr. Hennessy explained that the probable method would be by the State Department of Health, according to the Standards of the National Institute of Health, which include not only the standards laid down by the American College of Surgeons but also those of the American College of Radiology. Dr. Hennessy also suggested that it might be better not to ask for a law until the units were tried for a time and mistakes eliminated. The reason for that statement is this: In most states a program has been accomplished by law, but it was felt that in this state it would be better if we experimented first before asking for a law, so that we would have some experience upon which to base a problematical law.

Finally, the problem of finding a method of selecting proper cases for teaching to be sent to the University was discussed. There were three possible methods considered:

1. All the cases at each unit might be immediately reported to the University Hospitals, which could notify the directors as to which ones could be received and used for teaching. This would, for practical purposes, give the University the refusal of all indigent cases but would not insure the inclusion of early cases.

2. The directors might be relied upon to select proper cases to be referred to the University. It was pointed out that if provision was made for payment of the costs of caring for patients at home the present temptation to send only the most expensive patients would no longer exist.

3. A very desirable method would be for the hospitals to set up quotas based upon teaching needs. The directors of the various units could be kept informed of the changing status of such needs and could, by telephone and correspondence, satisfy them by trading with each other.

It was generally agreed that the last method would be most desirable.

In the discussion of the possible location of cancer units over the state it was suggested that in addition to the University Hospitals and Broadlawn's Cancer Clinics, which are already in operation, the following cities, Davenport, Dubuque, Cedar Rapids, Ottumwa, Boone, Fort Dodge, Sioux City, Council Bluffs, Mason City and Burlington, among others, might readily qualify for the establishment of such cancer units. That qualification, if you will recall, is mentioned above.

On March 10, a meeting of the Executive Cancer Committee of the Iowa State Medical Society was held in Des Moines. In addition to the members of the Executive Cancer Committee, the following were present by invitation: Dr. E. D. Plass and Dr. H. D. Kerr of the College of Medicine, Dr. C. F. Jordan of the State Department of Health, Dr. Fred Moore,

representing the Committee on Public Policy and Legislation of the State Society; the president, Dr. F. A. Hennessy, and the president-elect, Dr. F. P. McNamara. All members of the Executive Cancer Committee were in attendance with the exception of Dr. Gibbon.

In opening the meeting, it was noted, first, that, if cancer units were established over the state, the University should not be one of them, because it would be contrary to existing regulations; and second, that the financing of such cancer units should be under the regular county health units for the time being, since the counties pay for medical care of the indigents and so would pay for indigent cancer patients.

The discussion which followed brought out a statement that many counties did not have hospitals and so referred patients needing hospitalization to other counties where they could be cared for, and this could be done for cancer patients. Some counties, however, do not work with other counties except in cases of extreme emergency, and cancer is not considered an emergency. However, a plan of this sort would give the necessary experience on costs, etc. Dr. Plass said that the present law throws back upon the county the responsibility for providing care for patients who cannot be handled at Iowa City, and this includes cancer patients. The county, therefore, would be responsible for its cancer patients.

The next phase of the discussion centered upon the work of the State Department of Health. Dr. Erskine explained that he had talked to Dr. Bierring about establishing a Division of Cancer Control, and that Dr. Bierring had said this could be done, and a director appointed or hired without a change in the law. He also thought it would be possible for the State Department of Health to certify a unit on the recommendation of the Iowa State Medical Society, provided, of course, that it met the standards of the National Cancer Institute, the American College of Surgeons and the American College of Radiology, all of which work together on such standards.

It was pointed out that unless state funds were used in the program, the problem of cancer patients at the University would not be solved, because the counties would send the most expensive cases to Iowa City. After state funds are available, it will make no difference whether patients are treated at home or at the University, and then a better distribution of patients can be assured the University. However, it was felt that a law providing for such funds should not be asked for at the present time, but that the units should be tried to gain necessary figures on costs and experience. Dr. Fred Moore, of the Committee on Public Policy and Legislation, agreed with the thought that it would be better to ask for a law later, after we had had some experience. It was, therefore, moved and seconded that the Executive Cancer Committee not recommend the immediate passage of a law providing for a special appropriation for diagnostic and treatment facilities for cancer patients. The motion was carried.

It was next voted to have the Cancer Committee

and the Council ask Dr. Bierring to create a Division of Cancer Control and to cooperate with the Executive Cancer Committee in establishing standards for the certification of cancer units.

The third motion made was that the Executive Cancer Committee recommend to the Cancer Committee that in whatever method of providing diagnostic and treatment facilities for indigent cancer cases be finally adopted, the teaching needs of the University Medical School be safeguarded, and that in the opinion of the Executive Cancer Committee, the most effective method of doing this is to adopt some such system of selecting cancer patients as is outlined in the third method of the minutes of the February meeting at Iowa City, which reads as follows:

"A very desirable method would be for the hospitals to set up quotas based upon teaching needs. The directors of the various units could be kept informed of the changing status of such needs and could, by telephone and correspondence, satisfy them by trading with each other."

On March 10, following the meeting of the Executive Cancer Committee, that committee met with the Council of the Iowa State Medical Society and presented the resolutions with reference to lay education, and also the actions and recommendations of the Cancer Committee, which were adopted at the meeting of March 10. In addition to the presentation of the recommendations, the Council was informed that a survey was being made of the indigent cancer cases in selected counties within the state, and attached to this report are tables showing the results of the survey in the following counties: Woodbury, Linn, Dubuque and Pottawattamie. The types of cases in all of these counties run somewhat similar to those tabulated by the University Hospitals. An examination

TABLE III

The following carcinoma cases were cared for through the Emergency Relief Office Medical Department of Dubuque County, during the year 1939:

Lymphatics, extending to the lungs.....	2
Bowels	4
Stomach	4
Rectum	2
Throat	2
Uterus	2
Pancreas	1
Breast	2
Skin (face)	5
Descending colon	3
Prostate gland	5
Melanosarcoma	2

Nineteen patients were cared for in the home, and thirteen were sent to the University Hospital. Fourteen of these patients have died.

of these tables will show not only the number of cases, but in three of them we are able to arrive at the cost per patient care. However, the cost of the total care in these counties probably requires a little additional study. In Pottawattamie county, the cost per patient includes every method of treatment used, and hospitalization and full care received by the patient during the year 1939. The report from Woodbury county, on the other hand, covers hospitalization and radiologic treatment, but apparently does not cover surgical care. The table on Linn county lists

TABLE IV

The following carcinoma cases were cared for through the Emergency Relief Office Medical Department of Woodbury County, during the year 1939:

Total number of indigent cases.....	64
Total number of cases treated at home.....	36
Total number treated at University Hospital.....	28
Total cost for local care of cancer patients.....	\$3,254.24
Total cost for x-ray and radium therapy.....	690.00
Total cost of hospitalization.....	2,564.24
Average cost per patient.....	90.40
Number of patients hospitalized.....	29
Total number of hospital days.....	839½
Average length of hospital care per patient, days.....	28.9
Average cost per patient per hospital day.....	\$ 3.05

TABLE V

The following carcinoma cases were cared for through the Emergency Relief Office Medical Department of Pottawattamie County, during the year 1939:

Carcinoma of lip.....	1
Carcinoma of throat.....	3
Carcinoma of uterus.....	3
Carcinoma of ovary.....	2
Carcinoma of gallbladder.....	2
Carcinoma of face.....	1
Carcinoma of tongue.....	1
Carcinoma of colon.....	1
Carcinoma of stomach.....	3
Carcinoma of breast.....	1
Carcinoma of lung.....	2
Carcinoma of prostate gland.....	1
Carcinoma of abdominal wall.....	1

Those referred to University Hospital in 1939:

Carcinoma of pancreas.....	1
Sarcoma of upper jaw.....	1
Carcinoma of lower lip.....	1
Sarcoma of leg.....	1
Carcinoma of stomach.....	1
Carcinoma of rectum.....	1
Carcinoma of uterus.....	2
Carcinoma of breast.....	1
Carcinoma of skin of nose.....	1
Average cost of care all forms of cases, treated locally.....	\$131.00
Average age of patients.....	63.9 years
Deaths.....	12

TABLE VI

The following carcinoma cases were cared for through the Emergency Relief Office Medical Department of Linn County, during the year 1939:

Carcinoma of rectosigmoid.....	1
Carcinoma of breast.....	1
Carcinoma of ovary.....	1
Carcinoma of rectum.....	1
Carcinoma of labia.....	1
Carcinoma of stomach.....	3
Carcinoma of colon.....	1
Carcinoma of breast and esophagus.....	1
Basal cell epithelium.....	1
Lymphosarcoma of neck.....	1
Cancer of esophagus.....	2
Epithelioma of neck.....	1
Epithelioma of nose.....	2
Epithelioma of lip.....	3
Basal cell epithelioma behind left ear.....	1
Epithelioma of cheek.....	1
Fibrosarcoma of shoulder.....	1
Carcinoma of intra-abdominal wall.....	1
Carcinoma of pancreas.....	1
Adenocarcinoma of descending colon.....	1
Carcinoma of liver.....	1
Epithelioma.....	1

Total number of patients.....	28
Total number of patients who are still ambulatory.....	16
Total amount spent for medical care.....	\$1,088.16
Total amount spent for medical care, excluding SUI patients.....	913.16
Average spent for patients cared for locally.....	51.08

complete care, but differs from Pottawattamie and Woodbury counties in the amount of hospitalization rendered. However, we feel that the handling of the indigent cancer cases in the various county units which might be established, and a study along the lines suggested, coupled with the experience of the University Hospitals in Iowa City and Broadlawns Hospital in Des Moines, which also has an established cancer unit, will furnish us with necessary information to assist us in later asking for a law to cover the cancer situation in Iowa.

M. C. Hennessy, Chairman
A. W. Erskine
W. H. Gibbon
H. W. Morgan
D. F. Ward

Dr. Hennessy: Mr. Speaker, I move the acceptance and approval of the report of the Executive Cancer Committee.

The motion was seconded, put to a vote and carried.

Dr. Hennessy: Mr. Speaker, as chairman of the Executive Cancer Committee, I have an additional supplementary report which I wish to render. At the beginning of this year it was decided by the Council that the doctors who were on the Cancer Committee several years ago, who published the cancer manual, be permitted to continue to handle the affairs of the cancer manual until they were liquidated, inasmuch as they had more or less made themselves liable personally for the expense of producing that manual. I have here a report from those three members, Dr. McNamara, Dr. Erskine, and Dr. Plass.

REPORT OF THE COMMITTEE ON THE CANCER MANUAL

During the two years which have elapsed since its publication, the cancer manual has continued to attract favorable attention, and the Committee has made every effort to ensure the financial solvency of the project. Sufficient copies have been reprinted at low cost to permit the state medical societies or the state boards of health in Vermont, Delaware, New York and Pennsylvania to send the manual to each physician, and in two instances to each dentist in the state. By reason of these out-of-the-state sales, it has been possible to defray entirely the cost of printing and distributing the manual in Iowa, and to have a small balance. It may be of some interest to note that \$304.50 was received finally from Iowa physicians, that slightly more than \$60.00 came from single sales outside the state, and that the balance of the original expenditure was defrayed by profits from the larger sales mentioned above. In addition to the manuals distributed to the physicians of Iowa in 1938, the Committee has provided 500 additional copies for distribution to the physicians who have registered since then and who will begin practice within the next few years. This action is designed

to postpone necessary revision of the book for at least three or four years. Nearly 40,000 copies of the manual have been printed.

In October, 1938, when the financial status of the manual was extremely uncertain, the Trustees of our Society advanced \$518.17 to permit payment of the printer's bill. During the following year sufficient profit had accumulated to enable the Committee to repay \$79.17 of the amount. Since then, large sales to New York and Pennsylvania have provided sufficient surplus to make possible full payment of the balance due. A check for \$439.00 in the name of the Iowa State Medical Society is attached hereto. The Committee, moreover, still has available \$122.97 to meet certain small obligations which are outstanding.

The Committee recommends that it be continued for one more year in order finally to complete its function.

F. P. McNamara
E. D. Plass
A. W. Erskine

BALANCE SHEET CANCER MANUAL COMMITTEE

	Receipts	Expenditures
April, 1938		
Letters, return envelopes plus tax	\$	\$ 21.99
May, 1938		
5,000 copies Iowa Cancer Manual		880.04
Postage on returned letters and manuals		15.91
Postage on Iowa manuals.....		117.44
From Iowa physicians.....	304.50	
October, 1938		
Sale of manuals to Vermont.....	264.45	
Work on Vermont manuals.....		60.45
Check from Iowa State Medical Society	518.17	
Sale of manuals to Delaware.....	185.90	
Work on Delaware manuals.....		62.58
Postage, express, etc.....		4.13
Proceeds from sale of single copies outside Iowa.....	60.76	
November, 1939		
Binding (cloth) 43 manuals at 70c		30.10
February, 1940		
Profit on New York manuals.....	250.00	
April, 1940		
Profit on Pennsylvania manuals..	300.00	
400 Iowa manuals for later distribution		50.00
Balance	\$1,883.78	\$1,242.64
		641.14
	\$1,883.78	\$1,883.78
1938 Received from Iowa State Medical Society	518.17	
1939 Check to Iowa State Medical Society		79.17
1940 Check to Iowa State Medical Society		439.00
Balance	\$ 518.17	\$ 518.17
Repaid Iowa State Medical Society	\$ 641.14	
Net Balance on hand.....	\$ 122.97	

Dr. Hennessy: Mr. Speaker, I move the acceptance of that report, plus the check.

The motion was seconded, put to a vote and carried.

The Speaker: Next are Memorials and Communications.

Secretary Parker: Mr. Speaker, there are a number of memorials and communications, but they can wait until Friday morning. I wish to take the time I would have used in giving this report to encourage and insist on your remaining for the caucus when you elect the members of your Nominating Committee. I have been criticized a number of times because we do not have enough caucuses of county and district medical societies. Remember, this is a democratic institution. You can have all the caucuses you want. Parlor E is open all day and all night. If you want to have a district, county or any other kind of caucus, you can go there.

The Speaker: Is there any new business to come before the House of Delegates?

Dr. Moore: As chairman of the Committee on Public Policy and Legislation, I have been requested by the Iowa Association of Pathologists to offer you this resolution. This resolution has been prepared by the Iowa Association of Pathologists.

Whereas, In the report of the Committee on Public Policy and Legislation at the Sioux City Session in 1937, considerable attention was given to the proposed program of the State Department of Health, especially in regard to the establishment of a State Hygienic Laboratory and the inauguration of a free serodiagnostics service, it was the unanimous opinion of the official personnel of the State Society that the State Department of Health should have a laboratory at Iowa City, but that free Wassermann service should be limited to indigent patients (Jour. Iowa State Med. Soc., xxvii:356, July, 1937);

Whereas, It appears that a number of efforts have been made to get the State Department of Health to revise its present policy looking toward a wider distribution throughout the state of serodiagnostics facilities and limiting free service to those patients unable to pay for it in the customary manner;

Whereas, The present system promotes centralization of the service in Iowa City and causes unnecessary delay in receiving reports on blood and spinal fluid specimens; and

Whereas, The present system destroys contact between the physician and the serologist; and

Whereas, The present system deprives the local laboratories of the material and economic support which they might reasonably expect; and

Whereas, The present system discourages the development and maintenance of laboratories in medium-sized communities and hospitals because they cannot survive; therefore, be it

Resolved, That a committee be appointed to confer with representatives of the Iowa Association of Pathologists and to report back to this House on May 3 with specific recommendations for corrections of defects herein pointed out in the present system of State Laboratory Service."

Dr. Braunlich: I would like to second this resolution of Dr. Moore and, in seconding it, may I say that many of us are not fully informed on the matter. Some of us do not know what steps might be taken to remedy the present system. I would like to ask the privilege of the floor for a brief statement from one of the clinical pathologists of the state, Dr. Frederick H. Lamb.

Dr. Lamb: As a representative of the Iowa Association of Pathologists, I wish first to express the appreciation of my colleagues and myself for the privilege of appearing before you. With your permission, I shall try to present, in a matter of eight or nine minutes, the reasons for enlisting the aid of the State Society in bringing about a revision of the present plan and distribution of state laboratory service.

When laboratory methods began to take a place in solving clinical problems a new branch of medicine came into being. Known today as clinical pathology, this branch of medical practice has become one of twelve or thirteen to have its own national examining and certifying board. As long as thirty years ago it became evident that the practice of medicine without access to laboratory facilities was an intolerable handicap in the diagnosis and management of disease. Indeed, between the years of 1910 and 1915 progressive and forward looking physicians in several Iowa communities grouped themselves into organizations for the expressed purpose of securing laboratory services. Through such cooperative efforts in the reconstruction period after the World War, laboratory facilities became available in seven or eight of the larger communities throughout the state. The automobile and good roads have helped to expand the usefulness of these laboratories within radii of from forty to sixty miles. Thus, the natural trend would have been to blanket the state in all but the most thinly settled portions with a general diagnostic service responsive to most, if not all, of the demands made upon it.

It has, however, become increasingly apparent that the natural growth and accessibility of laboratory service are being curtailed. Through a combination of circumstances and pretexts our tax supported State Department of Health Laboratory has entered the field not only in a competitive but thoroughly subsidized manner. There is, of course, no objection to the expansion of state laboratory facilities where the public health and prevention of disease are primarily concerned; but when the public health laboratory service is extended to include a private diagnostic service, when we as physicians condone this practice, we are openly inviting state medicine. When such a service is rendered free to all regardless of ability to pay we are encouraging the spread of the most vicious form of state medicine to all branches of practice. Pathologists from time to time have called attention to this fact, and it is with some satisfaction, yet apprehension and regret, that the full importance of this prediction is now being realized by all physicians.

It has been claimed that the number of physicians engaged in laboratory work in Iowa is too small to carry any weight or merit consideration, but the same may also be said of the number of neurologists, gynecologists, dermatologists, or radiologists. This is not a sound argument against the principle involved. As long as a tax supported state laboratory is permitted to operate on a free-for-all-regardless basis there will be no extension of the more complete diagnostic laboratory service which many medium-sized communities could support. I venture to say that not a few in this room are practicing medicine in communities that could and would support a clinical laboratory at least in your local hospitals. After contributing in taxes to the support of the state laboratory you may feel that you are entitled to saving a few dollars on your Wassermann tests, but what about the hundreds or thousands of dollars your medical community loses each year in not being equipped to render your patients a more complete diagnostic service? Is this not a "penny-wise pound-foolish" attitude?

It may be claimed too that the work of the state laboratory is more reliable than that of local laboratories. Perhaps it will not be out of place in this connection to quote the figures of the National Committee on the Evaluation of Serodiagnostic Methods for Syphilis. The last published report of this committee revealed that 62 per cent of the State Department of Health Laboratories in this country are as yet incapable of performing tests for syphilis which meet the committee's requirements for specificity and sensitivity. (On the other hand, one hospital laboratory with which I am familiar has participated voluntarily in a series of control tests over a period of two years with a score to date of 100 per cent in specificity and 88 per cent in sensitivity.)

Within the past year the State Board of Health of Kansas has conceded that it was not the intention of its laws and regulations to render a statewide free serologic service, especially for those persons who were able to provide for themselves. This board adopted a resolution which in substance requires that all requests for serologic examinations must be accompanied by a certificate from the attending physician indicating that the individual is financially unable to pay for the service. The resolution was submitted by the Director of the Kansas State Laboratory to the United States Public Health Service and it was approved by the Assistant Surgeon General of the Division of Venereal Disease. A copy of this letter of approval may be found on page 665 of the February 24, 1940, issue of the *Journal of the American Medical Association*.

Another solution of the problem is the inauguration of branch laboratories, as was proposed by the Iowa Commissioner of Health in 1937 and reaffirmed in 1938. When asked recently why the proposal had seen no action in this three year period, the Commissioner's reply was that the director of the state laboratory was not favorably inclined to taking steps in this direction until his laboratory had been com-

pletely standardized. There is some reason to doubt whether the last clause in this statement is necessary to complete the expression of the director's attitude.

In conclusion, gentlemen, may I say, that as members of the House of Delegates, you represent the medical profession of Iowa. As individual physicians we look to you for leadership. Possibly it has not occurred to many of you that a numerically small but nevertheless important branch of your profession is being economically strangled simply for lack of better planning. The advance of modern medicine which would reach into many medium-sized cities and touch many smaller communities is being halted, not by design, but through a lack of full information and understanding. It is the belief of the Iowa Association of Pathologists that you will give this matter your consideration and take steps to remedy a situation which is not only quite needless in itself, but teeming with unwelcome implications.

More specifically, the clinical pathologists of the state ask that the Iowa State Medical Society through its House of Delegates recommend to the State Department of Health a revision of its present policy of centralizing all of the serodiagnostic work in the State Laboratory at Iowa City. Moreover they request that this revision shall include first, the inauguration of a system of branch laboratories, thereby rendering a local and more prompt service to fully one-half of the state's population; second, that an allotment from federal funds which the state receives for the control of syphilis, which of course relieves the state laboratory of some expense, be made to each diagnostic center in payment for work done; and third, that the state laboratory and its branches be instructed to furnish laboratory service for the diagnosis of communicable diseases at public expense to all state and county welfare clients, to wards of the state, counties and municipalities, and only to those residents of the state who find it impossible to pay for such laboratory service in the customary manner, the attending physician having authority to decide and certify as to the last of these categories.

Finally, may it be remembered that while laboratory people are a minority group, so also are the state and national associations minority groups when compared with the whole population.

The Speaker: Is there any further discussion? If not, as I understood Dr. Moore, I am to appoint a committee to consider this and bring in recommendations for your consideration next Friday morning.

Dr. Braunlich: I move that such a committee be appointed.

The motion was seconded, put to a vote and carried.

The Speaker: The resolution and the motion are adopted. I will appoint the following committee: Dr. R. H. McBride of Sioux City, chairman, Dr. D. C. Konzett of Dubuque, and Dr. William C. Goenne of Davenport. They will bring in a report to the House on Friday morning.

If there is no further new business, the various delegates will go to their caucus places in order to elect the Committee on Nominations.

Secretary Parker: May I ask, before you leave the room, that members of the Nominating Committee report to me, so that I can have the names of the Nominating Committee? I will designate that this Nominating Committee meet in Parlor E at nine thirty this evening for organization, to select your own chairman and secretary.

The meeting was declared adjourned at six thirty p. m.

HOUSE OF DELEGATES Friday Morning, May 3, 1940

The meeting convened at seven forty-five o'clock, Speaker McNamara presiding.

The Speaker: The House of Delegates is now in session. The first order of business is the roll call.

The Secretary called the roll.

Delegates

Adams.....	C. L. Bain
Appanoose.....	J. C. Donahue
Black Hawk.....	E. E. Magee
Boone.....	A. B. Deering
Bremer.....	L. C. Kern
Buchanan.....	F. F. Agnew
Butler.....	Bruce Ensley
Cass.....	R. M. Needles
Cerro Gordo.....	H. D. Fallows
Cherokee.....	C. F. Obermann
Dallas-Guthrie.....	E. J. Butterfield
Decatur.....	G. P. Reed
Des Moines.....	J. T. Hanna
Dickinson.....	T. L. Ward
Dubuque.....	D. C. Konzett
Greene.....	G. W. Franklin
Hamilton.....	E. F. Rambo
Hancock-Winnebago.....	T. J. Irish
Jackson.....	E. A. Hanske
Jasper.....	J. C. Hill
Jefferson.....	J. S. Gaumer
Johnson.....	E. M. MacEwen
Johnson.....	G. C. Albright
Johnson.....	A. W. Bennett
Lee.....	B. J. Dierker
Linn.....	T. F. Suchomel
Linn.....	J. K. von Lackum
Lucas.....	R. C. Gutch
Marshall.....	A. D. Woods
Mills.....	D. W. Harman
Monroe.....	T. A. Moran
Muscatine.....	L. C. Howe
O'Brien.....	W. R. Brock
Polk.....	N. Boyd Anderson
Polk.....	W. E. Baker
Polk.....	J. A. Downing
Polk.....	L. F. Hill
Polk.....	Fred Moore
Pottawattamie.....	G. V. Caughlan
Ringgold.....	E. J. Watson
Sac.....	L. B. Amick
Scott.....	George Braunlich
Scott.....	Wm. C. Goenne
Story.....	Bush Houston
Tama.....	F. W. Gessner
Wapello.....	L. A. Taylor
Webster.....	H. E. Nelson
Wright.....	R. D. Bernard

Alternates

Allamakee.....	J. W. Thornton
Benton.....	E. D. Lovett
Buena Vista.....	H. E. Farnsworth
Clayton.....	P. R. V. Hommel
Clinton.....	H. A. Amesbury

Grundy.....	E. A. Nash
Henry.....	L. P. Ristine
Madison.....	H. N. Boden
Palo Alto.....	G. H. Keeney
Wayne.....	J. H. McCall
Woodbury.....	W. F. Harriman

State Society Officers

President.....	F. A. Hennessy
President-elect.....	F. P. McNamara
First vice president.....	E. A. Moore
Secretary.....	R. L. Parker
Treasurer.....	H. J. McCoy
Trustee.....	O. J. Fay
Trustee.....	L. R. Woodward
Councilor.....	L. L. Carr
Councilor.....	C. H. Cretzmeyer
Councilor.....	F. P. Winkler
Councilor.....	J. E. Reeder
Councilor.....	E. B. Bush
Councilor.....	C. W. Ellyson
Councilor.....	H. A. Householder
Councilor.....	C. A. Boice
Councilor.....	H. A. Spilman
Councilor.....	J. G. Macrae
Councilor.....	M. C. Hennessy

Secretary Parker: There are 76 votes in the House.

The Speaker: The next order of business is the reading of the minutes of the previous meeting.

The Secretary read the abstracted minutes of the meeting of the House of Delegates held Wednesday, May 1, 1940.

The Speaker: You have heard the minutes of the previous meeting. What is your desire? Are there any corrections or additions? If not, they will stand approved. The next order of business is the Report of the Committee on Nominations.

REPORT OF NOMINATING COMMITTEE

Dr. Hanna: The Nominating Committee met for organization purposes at 10:00 p. m., May 1, 1940.

Dr. Howard Risk of Oelwein was elected chairman and Dr. J. T. Hanna of Burlington secretary. The following delegates were present: Howard Risk of Oelwein, H. D. Fallows of Mason City, J. B. Knipe of Armstrong, C. F. Obermann of Cherokee, Bush Houston of Nevada, E. E. Magee of Waterloo, J. K. von Lackum of Cedar Rapids, J. T. Hanna of Burlington, L. A. Taylor of Ottumwa, G. P. Reed of Davis City and G. V. Caughlan of Council Bluffs. The committee adjourned to meet at 11:00 o'clock May 2, 1940, to select nominees.

On May 2, 1940, the Nominating Committee convened at 11:00 a. m. with all members present. The following nominations are hereby presented to the House of Delegates as the result of the deliberations of your Nominating Committee:

For President-Elect: Earl B. Bush of Ames, George C. Albright of Iowa City, and M. C. Hennessy of Council Bluffs.

For First Vice President: George B. Crow of Burlington.

For Second Vice President: Harold L. Brereton of Emmetsburg.

For Trustee: Oliver J. Fay of Des Moines.

For Councilor, Fourth District: James E. Reeder of Sioux City.

For Councilor, Ninth District: R. C. Gutch of Chariton.

For Delegates to the American Medical Association: Arthur D. Woods of State Center and T. F. Thornton of Waterloo.

For Alternates to American Medical Association: R. D. Bernard of Clarion and J. H. Peck of Oakdale.

The Speaker: You have heard the report of the Committee on Nominations. May we have a motion to accept that report?

Dr. E. A. Moore: I *move* that the report be accepted.

The motion was seconded, put to a vote and carried.

The Speaker: I would remind the delegates that it is their privilege to make additional nominations from the floor. If there are additional nominations, we will accept them at this time. If not, we will prepare ballots for the election. I will appoint Dr. Woods, Dr. Donahue, and Dr. Hanske as tellers. We are voting on the President-Elect. The candidates are: Earl B. Bush, George C. Albright and M. C. Hennessy.

The delegates cast their ballots and the first vote was as follows: Dr. Bush, 34; Dr. Hennessy, 27; Dr. Albright, 11; and Dr. Woods, one.

The Speaker: The Constitution states that a majority of the votes cast shall be necessary to elect. It is necessary to have a second ballot.

The delegates cast their votes, and the tellers took the count, but no candidate had a majority.

Dr. Hennessy: I *move* that the House of Delegates instruct the Secretary to cast a unanimous ballot for Dr. Bush.

The motion was seconded, put to a vote and carried.

Secretary Parker: I take it that I am instructed to cast the unanimous vote for Dr. Bush. I so do.

The Speaker: Therefore, Dr. Bush is declared elected. Is Dr. Bush here? (Applause.)

President-Elect Bush: Mr. Speaker, and Gentlemen: I can't express to you what this means. I just hope you will be tolerant with me, and that I can give you a reasonably decent tenure of office. I certainly want to thank you again from the bottom of my heart. (Applause.)

The Speaker: The next ballot is for the first vice president.

Dr. Suchomel: Not having heard further nominations from the floor for any of the other offices, I *move* that the By-Laws be suspended and that the Secretary be instructed to cast the unanimous ballot of this House of Delegates for the remainder of the slate submitted by the Nominating Committee.

The motion was seconded, put to a vote and carried.

Dr. Spilman: The election of Dr. Bush leaves a vacancy in the Fifth District of the Council.

The Speaker: I will ask the chairman of the Nominating Committee to report:

Dr. Hanna: Dr. Risk, Chairman of the Nominating Committee, was called home last evening. The Nominating Committee will meet just outside this room at once.

Dr. Bush: Mr. Speaker, as Councilor of the Fifth District, I wish to resign at this time.

Dr. Spilman: I *move* that the resignation be accepted.

Dr. Boice: I *second* it.

The motion was put to a vote and carried.

Dr. Downing: I *move* that the vote on meeting place be by ballot.

Dr. Albright: I *second* the motion.

It was put to a vote and carried.

The Speaker: While the Nominating Committee is out, we will discuss that.

Secretary Parker: Mr. Speaker, this House of Delegates has two invitations for the place of meeting next year. The two cities are Davenport and Des Moines. Both are equipped to take care of the convention. The Chambers of Commerce and medical societies of both cities extend to this House an urgent invitation to hold the convention in their towns.

Dr. Goenne: Mr. Speaker, you can probably sense that I have come forward to extend to you a very heartfelt and courteous invitation to hold your next year's convention in Davenport. Gentlemen, the State Medical Society is not an orphan child. By that, I mean it need not be pushed around and feel that nobody wants it. We really want it. We would like to have you. It is our feeling that, for the welfare and for the good of the medical society as a whole, we should occasionally change the city in which the convention is held. We appreciate and admit the fact that Des Moines is more centrally located. It is probably easier for you to come to Des Moines, possibly a little more convenient, but it is a known fact, also, that if you stay in the same rut continuously year after year, you are certainly going to die of dry rot. I think if you come down to Davenport next year, we will give an injection that will keep this medical society stimulated for a good many years to come. I believe you gentlemen who were there five years ago will remember that we put on a very good convention, and that we showed you a good time. I have been hearing comments every year in regard to the wonderful convention, the wonderful program, and the wonderful time they had in Davenport. I wish at this time, in behalf of Dr. Braunlich, my associate delegate, the Scott County Medical Society, and the citizens of Davenport, to extend to you a heartfelt invitation to hold your convention in Davenport.

Dr. Fred Moore: Mr. Speaker, in behalf of Des Moines, I think Bill Goenne should be required to present evidence that they die of dry rot when they come to Des Moines.

Dr. Hanna: Mr. Speaker, while the ballot is being taken, I wish to extend an invitation to this Society, on behalf of Burlington, to meet in Burlington on the one hundredth anniversary of this Society. The first meeting was in Burlington, and we ought to have one there at least every hundred years. (Laughter and applause.)

The delegates cast their ballots, the tellers collected and counted the ballots.

Secretary Parker: Seventy-four votes cast, of which Davenport has 47. That is a majority.

The Speaker: Davenport is therefore declared the

meeting place for next year. Is the Nominating Committee ready to report?

Dr. Hanna: The Nominating Committee wishes to present the name of Dr. Edward F. Beeh, of Fort Dodge, as Councilor for the Fifth District.

Dr. Keeney: Mr. Speaker, I *move* that this name be accepted and the nominations be closed.

The motion was seconded, put to a vote and carried.

Dr. Suchomel: I *move* that the By-Laws be suspended and the secretary be instructed to cast the unanimous ballot of the House of Delegates for Dr. Beeh as Councilor for the Fifth District.

The motion was seconded, put to a vote and carried.

Secretary Parker: The vote is so cast.

The Speaker: I therefore declare Dr. Beeh elected. The next order of business is Reports of Committees.

Secretary Parker: Mr. Speaker, I have a report of the special committee appointed by the President to deal with life membership, which I wish to read at this time.

REPORT OF COMMITTEE ON LIFE MEMBERSHIP

In order to expedite the conduct of the business of this House of Delegates, your President, Dr. Felix A. Hennessy, appointed me chairman of a committee of three to examine all requests for life membership and to bring recommendations regarding them to this House. The other two members of the Committee are Dr. A. W. Erskine and Dr. Prince Sawyer.

We have met and considered all applications which have been presented to us, and have studied the rule regarding life membership and also the transactions of the House of Delegates at the time the rule was passed, in an effort to learn the wishes of the State Society in this matter. After this study, it is the consensus of this Committee that life membership should be granted only to physicians who are not in active practice, who are incapacitated because of sickness or disability, or who are in reduced financial circumstances and find it hard to continue their membership. The Committee does not feel that length of membership should be the criterion for awarding life membership, since probably one-third of the members of the State Society could be considered eligible on that basis.

In reviewing the applications, the Committee recommends that the following physicians be granted life membership because of one of the above-mentioned reasons:

W. L. Downing, Moulton.
J. M. Casey, Fort Madison.
R. A. Becker, Atlantic.
J. C. Dennison, Bellevue.
G. H. Sollenbarger, Corydon.
J. J. Daly, Decorah.
A. P. Maloney, Fonda.
Th. T. Naee, Graettinger.
Jeannette Dean-Throckmorton, Des Moines.
Alice H. Hatch, Des Moines.
C. T. Thomas, Guthrie Center.
W. F. Amdor, Carbon.
J. H. Wallahan, Corning.
L. A. Rodgers, Oskaloosa.
M. V. Thornburg, Guthrie Center.
S. E. Blair, Alford.

Three years ago the Constitution was changed so that thirty years' membership no longer entitled a member to life membership. Nevertheless, the following names have been presented for life membership because of length of membership in the State Society:

J. C. Powers, Hampton.
Ben S. Walker, Corydon.
M. N. Gernsey, Waverly.
George B. Maxwell, Davenport.
C. B. Hickenlooper, Winterset.
F. T. Launder, Garwin.
G. T. McDowall, Gladbrook.

Your Committee has reviewed each individual case, but since the physicians for whom the requests are made are in active practice, are not incapacitated by illness or disability, and are not in reduced financial circumstances, the Committee does not feel justified in recommending them for life membership.

We have a third classification also, members who are recommended for life membership by their county societies, but who are not in good standing. Their county societies were notified that dues must be paid to make a member eligible, but no action was taken. The Committee has therefore had to reject the applications of Eric H. Brown of Marengo and C. E. Wallace of New Sharon because the physicians are not eligible.

Channing G. Smith, Chairman
A. W. Erskine
Prince E. Sawyer

Secretary Parker: I *move* you, Mr. Speaker, that the report of this committee be adopted.

The motion was seconded.

Dr. Hanna: George Dixon, who has been ill with tuberculosis and living in Arizona, has kept his dues paid. He has been practically bedfast for two years, and I am surprised that his name was not on the list. The secretary of our county society was supposed to notify you.

Dr. Parker: We have had no request from your secretary.

Dr. Hanna: Is it not possible to submit George Dixon's name now? He is living on insurance, and is spending most of his time in bed with tuberculosis.

Secretary Parker: Is he in good standing now?

Dr. Hanna: He has paid his dues right along.

Secretary Parker: I *move* you, Mr. Speaker, that life membership in the State Society be granted Dr. Dixon.

The Speaker: We have a motion before the House, which is to adopt the report in regard to life members. Is there any further discussion?

The motion was put to a vote and carried.

The Secretary: I *move*, Mr. Speaker, that life membership be granted to Dr. Dixon.

The motion was seconded, put to a vote and carried.

The Speaker: Are there any other committee reports?

Dr. Conzett: Your Committee respectfully submits the following report concerning the establishment of branch laboratories of the State Hygienic Laboratory. It carefully studied the proposition submitted by Dr. Frederick Lamb, representing the Iowa Asso-

ciation of Pathologists, interviewed the Commissioner of Health, Dr. Bierring, and the Dean of the Medical School, Dr. MacEwen. The entire history and financial set-up were reviewed. It was discovered that the Director of the Laboratory, an entity completely dissociated from the Medical School, received only \$2,100 of his salary from the combined federal and state grant, the remainder of his salary being that regularly budgeted for his position on the University faculty. Furthermore, only \$15,000 in 1938 and \$16,000 in 1939 was allocated to the support of the laboratory from the combined federal-state funds; this in addition to the \$45,000 allocated by the legislature. Since January 1, 1940, the merit system has been introduced wherein all employees, from stenographers up, must qualify by certification before funds will be available. The law as now enacted places the State Hygienic Laboratory centrally. The present system, through periodic tests, has shown one hundred per cent accuracy in diagnosis.

After weighing the facts that relatively small amounts of federal funds are available, that certification of employees is now mandatory, that re-enactment of legislation would be necessary before the proposed suggestion could be considered, and that future federal appropriations are uncertain, your Committee recommends that no action be taken at this time but that further study be given the matter. It further recommends that Iowa physicians, insofar as possible, use private laboratories for laboratory examinations of their private patients.

Dr. Conzett: Mr. Speaker, I *move* the acceptance of this report and the discharge of the committee.

The motion was seconded, put to a vote and carried.

Dr. F. A. Hennessy: Mr. Speaker, may I have the floor. I hate to delay you, but I fear you have left the life membership business which you discussed before the previous motion a wide open proposition. I believe this is the legislative body, and I think you should authorize the President to appoint a committee every year to sift these requests prior to the annual meeting, and I so *move*, if it is my privilege.

The motion was seconded, put to a vote and carried.

Secretary Parker: I have the report of the Baldrige-Beye Memorial Committee.

REPORT OF THE BALDRIDGE-BEYE MEMORIAL COMMITTEE

To the House of Delegates of the Iowa State Medical Society:

Only one essay was submitted this year. This had the title: "The Precipitability and Specificity of Certain Fractions of *Monilia Albicans*." The essayist chose the pseudonym of M. Preston Albert. Your committee agrees that this essay represents the results of a great deal of careful work and that this work is original. This inquiry into methods of classifying the pathogenic fungi on the basis of their serologic reactions may prove very useful. We believe that you can make no mistake in awarding the prize to this contestant, even though, as we suspect, the prize will have been carried off by the same worker in two successive years.

We have given the following matter consideration: whether we should recommend that you withhold the prize in case only one essay is submitted. The majority of the committee feels that we should not make such a recommendation, and that if an essay submitted represents a great deal of work together with original ideas on the subject, the prize should be awarded, even if it is the only essay submitted.

Julius S. Weingart, Chairman
Emerson B. Dawson
W. M. Fowler

Secretary Parker: I move, Mr. Speaker, that the report of this committee be accepted.

The motion was seconded, put to a vote and carried.

Dr. MacEwen: I would like to announce that the essayist has never competed before.

Dr. Woods: I would like to ask Dr. MacEwen why we don't have more contestants. Do you work them so hard that they don't have time?

Dr. MacEwen: It is hard for me to answer that. There are a great many of the boys doing research work. Many of these boys, like McKee, a bacteriologist, who will graduate in another year, like to get their publications in a scientific journal belonging to their field, because they plan to stay in basic medicine. I think one of the things that blocks it is the limitation on publication. I would like to say that most of the scientific societies will not accept an article which has been published in another journal.

The Speaker: We have some communications.

Secretary Parker: We have wires from the Missouri State Medical Society and also from the St. Louis Medical Society requesting the delegates of the Iowa State Medical Society to push St. Louis for the 1943 convention. Those wires will be turned over to the delegates from Iowa. I have a resolution from the Joint Committee on Professional Relations of New Jersey.

"Resolved, That the Joint Committee on Professional Relations request the Medical Society of New Jersey and the New Jersey Pharmaceutical Association to enter a formal protest against the prescribing of medicines and the giving of medical advice on the radio, with the exception of such broadcasts on health matters as are given under the auspices of recognized associations of licensed physicians or federal, state and local health departments; and be it further

"Resolved, That such protest be sent to the broadcasting companies and the Federal Communications Commission."

I move, Mr. Speaker, that the Iowa State Medical Society join New Jersey in such a protest.

The motion was seconded, put to a vote and carried.

Secretary Parker: I have a communication from the National Association of Retail Druggists regarding the sale of vitamins, and in their resolution they wish to restrict that to drug trade entirely. I move, Mr. Speaker, that it be tabled.

The motion was seconded, put to a vote and carried.

Secretary Parker: I have a communication, Mr. Speaker, about the Pharmaceutical Convention. As you know, the United States Pharmacopeia has been revised every ten years, starting with 1820. The con-

vention for 1940 is to meet in Washington on May 14. The Iowa State Medical Society has been asked to send a delegate to this convention. I move, Mr. Speaker, that the Iowa State Medical Society does not, this year, send such a delegate.

The motion was seconded.

Secretary Parker: The convention meets May 14, and it is an expensive trip. I know a little about pharmaceutical organizations. I know the program is cut and dried, and all we could do if we went there is to vote, and I do not think it worth the expense of the Iowa State Medical Society to be so represented. I talked this over with the dean of the medical school, and he came to about the same conclusion that I did this year. I do think organized medicine should take more interest in revising the standard works of medicine than it has in the last few years, but I still think my motion should prevail.

The motion was put to a vote and carried.

The Speaker: Is there any new business?

Dr. Fred Moore: Mr. Speaker, I have a resolution to present so that this Society may place itself on record with reference to some legislation before the United States Congress.

"Whereas, There is before the United States Congress a bill (H. R. 8963) to amend Section 40 of the United States Employees Compensation Act, which will qualify chiropractors for rendering services under such Act; and

"Whereas, Anyone conversant with medical and chiropractic education knows that the latter are not in any sense adequately trained to assume such responsibilities; and

"Whereas Representative John W. Gwynne, of Waterloo, is a member of a subcommittee of the House of Representatives to consider the proposed amendment; therefore, be it

"Resolved, by the House of Delegates of the Iowa State Medical Society, that the county medical societies of the Third Congressional District, and the Committee on Public Policy and Legislation be requested to present the views of the Iowa State Medical Society to Congressman Gwynne, and provide for him in fullest measure all information that will enable him to arrive at rational conclusions on the question involved; and be it further

"Resolved, That the committee handling this matter be privileged to change the wording of the statement as may be needed to strengthen it, provided the objectives sought are not impaired."

I think those of you who know Congressman Gwynne feel very positive that his attitude on this question will be in accordance with our views, but we should not omit official recognition of this particular thing.

I move its adoption.

The motion was seconded, put to a vote and carried.

The Speaker: Is there any other new business?

Dr. M. C. Hennessy: Mr. Speaker, there has been considerable dissatisfaction in my district about this Iowa Narcotic Act. Men complain about the

fact that it requires more record keeping and contains some technicalities which are a little more severe than the Federal law. Incidentally, they also complain about the fact that the medical profession has no representation on that commission, and they feel if there is any necessity for such a law in this state, certainly the medical men ought to be represented in that law and in its enforcement, and I think so, too. I do not know why we should be subjected to the scrutiny of druggists. Therefore, just for the purposes of discussion, I *move* that this House of Delegates instruct our Committee on Public Policy and Legislation to investigate the matter and take whatever steps may be necessary to give the medical profession more representation in its enforcement.

The motion was seconded, put to a vote and carried.

Dr. Hanna: Mr. Speaker, I wish to present to this House for discussion, a matter in which I have been very much interested. Doctors are more or less durable. There are few of us who ever expect to practice fifty years, but some men do, and I believe this Society should recognize the coming of age, if you please, of our members in the state who reach fifty years of practice during the twelve months prior to each meeting. I *move* that a committee be appointed to look into the matter of some suitable recognition, if desired, and report at the next meeting of the House of Delegates on the matter of taking some public or official recognition of our members who complete fifty years of practice in the field of medicine in the twelve months prior to each annual meeting of the Iowa State Medical Society.

The motion was seconded, put to a vote and carried.

The Speaker: Is there any other new business? The next order of business is the announcement of committees.

Secretary Parker: Mr. Speaker and Members of the House of Delegates: The incoming President has asked that his committee appointments be read at this time, and asks for your approval. They are as follows:

STANDING COMMITTEES OF THE HOUSE OF DELEGATES

COMMITTEE ON CONSTITUTION AND BY-LAWS

John H. Henkin, Chairman.....Sioux City
William L. Alcorn.....Washington
Bush Houston.....Nevada

COMMITTEE ON FINANCE

Ernest C. McClure, Chairman.....Bussey
Hillard A. Tolliver.....Charles City
Arthur S. Bowers.....Orient

COMMITTEE ON MEDICAL ECONOMICS

Ernest E. Shaw, Chairman.....Indianola
Thomas F. Thornton.....Waterloo
Bernard B. Parker.....Centerville
Harry M. Ivins.....Cedar Rapids
Charles T. Maxwell.....Sioux City

COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS
Felix A. Hennessy, Chairman.....Calmar
Jack V. Treynor.....Council Bluffs
Con R. Harken.....Osceola

MEDICOLEGAL COMMITTEE

Frank A. Ely, Des Moines, Chairman.....1941
George C. Albright, Iowa City.....1942
Elmo E. Gamet, Lamoni.....1943

COMMITTEE ON PUBLIC POLICY AND LEGISLATION

Fred Moore, Chairman.....Des Moines
Ransom D. Bernard.....Clarion
Lonnie A. Coffin.....Farmington

SPECIAL COMMITTEES OF THE HOUSE OF DELEGATES

BALDRIDGE-BEYE MEMORIAL COMMITTEE

Willis M. Fowler, Chairman.....Iowa City
Emerson B. Dawson.....Fort Dodge
Melvin G. Bourne.....Algona

COMMITTEE ON CHILD HEALTH AND PROTECTION

Harold E. Farnsworth, Chairman.....Storm Lake
Robert H. McBride.....Sioux City
Everett D. Plass.....Iowa City
Clarence P. Phillips.....Muscatine
Howard A. Weis.....Davenport
Lee F. Hill.....Des Moines
Glenn E. Harrison.....Mason City

FRACTURE COMMITTEE

Donald C. Conzett, Chairman.....Dubuque
Fred L. Knowles.....Fort Dodge
Arch F. O'Donoghue.....Sioux City
Karl R. Werndorff.....Des Moines
Lewis M. Overton.....Des Moines
Douglas N. Gibson.....Des Moines
William G. Bessmer.....Davenport

HISTORICAL COMMITTEE

Walter L. Bierring, Chairman.....Des Moines
John T. McClintock.....Iowa City
Tom B. Throckmorton.....Des Moines
Frank M. Fuller.....Keokuk
Henry G. Langworthy.....Dubuque

MEDICAL LIBRARY COMMITTEE

Albert J. Joynt, Chairman.....Waterloo
Jeannette Dean-Throckmorton.....Des Moines
William S. Greenleaf.....Atlantic

COMMITTEE ON MILITARY AFFAIRS

Robert S. Shane, Chairman.....Pilot Mound
Earl D. McClean.....Des Moines
James C. Donahue, Secretary.....Centerville

COMMITTEE ON PNEUMONIA CONTROL

Fred M. Smith, Chairman.....Iowa City
Dennis H. Kelly.....Des Moines
Benjamin F. Wolverton.....Cedar Rapids
Herbert W. Rathe.....Waverly
Carl F. Jordan.....Des Moines
Albert A. Schultz.....Fort Dodge

PUBLIC RELATIONS COMMITTEE

Herbert E. Stroy, Chairman Osceola
 Charles C. Colletter Spencer
 Lora D. James Fairfield

COMMITTEE ON SCIENTIFIC EXHIBITS

Lewis M. Overton Des Moines
 Frederick H. Lamb Davenport
 Allen C. Starry Sioux City

WOMAN'S AUXILIARY ADVISORY COMMITTEE

James C. Hill, Chairman Newton
 John G. de Bey Orange City
 Edward A. Hanske Bellevue
 Francis K. Burnett Clarinda

In addition, Dr. McNamara has named the following physicians to serve as section chairmen next year:

Medical Section Clifford R. Watkin, Sioux City
 Surgical Section Frank R. Peterson, Iowa City
 Eye, Ear, Nose and Throat Section Elmer P. Weih, Clinton

Secretary Parker: I move, Mr. Speaker, that the committee appointments, as announced and recommended by the incoming President, be approved by this body.

The motion was seconded, put to a vote and carried.

Dr. M. C. Hennessy: I move we adjourn.

The motion was seconded and carried, and the meeting adjourned at nine ten o'clock.

MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS AND COMMITTEES

Meeting of the Council
Wednesday, May 1, 1940

The Council of the Iowa State Medical Society met at the Hotel Fort Des Moines in Des Moines Wednesday, May 1, 1940, for its first meeting during the annual session. The following councilors were present: Drs. Carr, Cretzmeyer, Winkler, Reeder, Bush, Ellyson, Householder, Boice, Macrae and Hennessy.

Meeting was called to order at 11:45 a. m. by the chairman, Dr. Winkler; minutes were read and approved; the Tuberculosis Committee was discussed and the appointment of Dr. H. E. Stroy of Osceola, Dr. J. C. Painter of Dubuque, Dr. W. H. Gibbon of Sioux City, Dr. A. A. Schultz of Fort Dodge, and Dr. C. A. Boice of Washington as members of the committee was approved. Meeting adjourned at 12:25 p. m.

Meeting of the Council
Thursday, May 2, 1940

The Council held its second meeting during the annual session at 11:00 a. m. Thursday, May 2, with all members present. Dr. J. C. Painter of Dubuque was also invited to attend the meeting. Dr. Painter explained the functions of the Tuberculosis Committee, stating that thirty-one states now have a plan for tuberculosis work modeled on the Pennsylvania plan. It was decided to invite Dr. Bierring to the third meeting, and to adjourn without taking any action. Meeting adjourned at 12:45 p. m.

Meeting of the Council
Friday, May 3, 1940

The Council held its third meeting during the annual session at 9:30 a. m. Friday, May 3. Councilors in attendance were Drs. Carr, Cretzmeyer, Winkler, Reeder, Ellyson, Householder, Boice, Spilman, Macrae, Hennessy, and the new councilor from the Ninth District, Dr. R. C. Gutch; Dr. Bierring attended by invitation.

Business transacted was: introduction of new Councilor; explanation of tuberculosis work of the State Department of Health by Dr. Bierring; authorization of Executive Cancer Committee to act as advisory cancer committee for State Department of Health; appointment of a committee to investigate the need for a Committee on Industrial Health to work with the State Department of Health; reappointment of Speakers Bureau Committee with the exception of Dr. Bush, who resigned to serve as president-elect; decision to continue Tuberculosis Committee for another year. Meeting adjourned at 10:30 a. m.

Meeting of the Committee on Child Health and Protection
Thursday, May 2, 1940

The Committee on Child Health and Protection met at the Hotel Fort Des Moines, Thursday morning, May 2, 1940, with the following persons present: Drs. H. E. Farnsworth of Storm Lake, L. F. Hill of Des Moines, C. P. Phillips of Muscatine, E. D. Plass of Iowa City, H. A. Weis of Davenport, and J. M. Hayek of Des Moines. The committee discussed plans for the postgraduate course on care of the premature and newborn which is to be held in Iowa City early in September.

Meeting of the Board of Trustees
Wednesday, May 29, 1940

The Board of Trustees of the Iowa State Medical Society met in the central office Wednesday, May 29, 1940, at 9:30 a. m. Those present were the three trustees (Drs. O. J. Fay of Des Moines, Lee R. Woodward of Mason City and John I. Marker of Davenport) Drs. Robert L. Parker, secretary, Harold J. McCoy, treasurer, Lee F. Hill, editor; and Channing G. Smith, medical consultant for the State Board of Social Welfare.

Dr. Fay was reelected chairman for the coming year; minutes were read and approved; bills were authorized; the amount of the treasurer's bond was reduced from \$30,000.00 to \$15,000.00; Dr. Smith presented a plan for making a survey on the cost of medical care for relief clients, in cooperation with the Farm Foundation, the Farm Security Administration, and the State Board of Social Welfare, which plan was approved by the Board; Journal matters were discussed; Dr. Lee F. Hill and Dr. Dennis H. Kelly were reappointed editor and associate editor respectively; and salaries were fixed. Meeting adjourned at noon.

WOMAN'S AUXILIARY NEWS

MRS. H. I. MCPHERRIN, *Chairman of Press and Publicity Committee*

5822 North Waterbury Road, Des Moines

President—MRS. ELBERT T. WARREN, Stuart

President Elect—MRS. W. R. HORNADAY, Des Moines

Secretary—MRS. FRED MOORE, Des Moines

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

PRESIDENT'S MESSAGE

In accepting the presidency of the Woman's Auxiliary to the Iowa State Medical Society I am not unmindful of the responsibilities and the sacrifice I am assuming. I shall need the encouragement, support and cooperation of the officers, chairmen, and in fact, every member to carry on.

In order that our Auxiliary may be of the greatest service to the communities it becomes our chief duty to strengthen our own organization, and to that end we must enlarge our membership. May we who are leaders not take all the credit or work unto ourselves, but attract as many as possible and thus pass the work along. May we as wives who care enough about the human work our husbands are doing be willing to sacrifice our peace and contentment to carry on the freedom of their ideals.

The medical profession has always been ready to perform every task. An understanding wife is a large percentage of a doctor's success; but the time has come when she must do more than her part in the home. She must inform herself so that she can inform others, that they may know what is right in medicine. New opportunities have come to make contact with the laity.

Our essential work is that of a helpmate and we must pledge our time and strength to bring to fruition the ideals of the Auxiliary. The medical society is looking to us not only to familiarize ourselves with the truths about the medical profession but to carry these to the public. We have been urged to make a study of the work of the National Physicians Committee, to take an active part in Red Cross work as members of the Auxiliary and to sponsor a flower day for local hospitals. Also the suggestion is made that the county units take up the study of local medical history or the history of medicine in Iowa. We will continue the study of Mental Hygiene and will have programs on child development and on different lines of public health work. Our public relations chairman, Mrs. W. A. Seidler of Jamaica, was cited at the National Auxiliary meeting as one of the two outstanding members in the National Auxiliary for public work, because of her splendid management of the health essay contest. Let us continue our efforts in promoting *Hygeia* not only to secure subscriptions but to study and become familiar with the contents.

May the wives of doctors who are not members feel that joining the Auxiliary is an opportunity not only for friendship and education but an unparalleled opportunity for service to the community, and the promotion of public health. May those whose counties are not organized become members-at-large until their counties are organized. We, as members of the Auxiliary should be *at command*. Each one should be assigned to the task for which she is best fitted. Only as we increase our membership and reach out to all communities in the state are we bringing our ideals to fruition.

The Bulletin, published quarterly by the Woman's Auxiliary to the American Medical Association, gives much interesting information on Auxiliary work and ideas. The price is one dollar. Mrs. James P. Simonds, 25 East Walton Street, Chicago, Illinois is the Editor.

Let us realize that our organization has a great work to do and that we must mobilize our forces that the best results may be obtained. Let us be prepared and carry on.

Mrs. E. T. Warren

The following committee appointments have been made for the year, 1940-1941:

Organization—

Mrs. William R. Hornaday, Des Moines

Program—

Mrs. Peter W. Beckman, Perry

Legislation—

Mrs. J. Charles Ryan, Des Moines

Revisions—

Mrs. S. E. Lincoln, Des Moines

Hygeia—

Mrs. Howard F. Clark, Stuart

Press and Publicity—

Mrs. Henry I. McPherrin, Des Moines

Printing—

Mrs. Isaac Sternhill, Council Bluffs

Finance—

Mrs. Dean W. Harman, Glenwood

Exhibits—

Mrs. Hugh B. Woods, Des Moines

Past Presidents—

Mrs. M. C. Hennessy, Council Bluffs

Parliamentarian—

Mrs. Frederick W. Mulsow, Cedar Rapids

Historian—

Mrs. Edward L. Bower, Guthrie Center

REPORTS OF OFFICERS

President's Report

To the Eleventh Annual Convention of the Woman's Auxiliary to the Iowa State Medical Society, May 1 and 2, 1940: Assuming the presidency of the Woman's Auxiliary two weeks prior to the National Convention held in St. Louis last May, it was my privilege and pleasure to attend this meeting, to extend greetings, and to read the report from our state. Four of our newly elected officers and a large number of Auxiliary members registered at the convention, and we were happy and proud to have Mrs. James A. Downing seated with the executive officers, serving as recording secretary for the National Board.

The Fall Board Meeting was held in Des Moines on September 22, at the Hotel Fort Des Moines. Seventeen members were present, and the interest and enthusiasm displayed was gratifying; all the officers and chairmen had definite plans for this year's work. In November I attended the National Board Meeting in Chicago, where much information was gathered from the reports of the state presidents. We shall also receive a worthwhile message from our national president, Mrs. Rollo K. Packard, and we are happy to be honored by her presence at our state meeting.

It was my pleasure to visit several county auxiliaries during the past year; two visits to Dubuque, and one each to Dallas-Guthrie, Woodbury, Pottawattamie and Polk. Considerable time and thought has been given to our department of organization. We dared to hope for a one hundred per cent membership in all counties; twenty-two counties are organized into nineteen units. Through the efforts of our Advisory Councilor and Dr. Hennessy, president of the State Society, we were granted a fund for organizational purposes.

The *Hygeia* subscription campaign proved most successful, one of our counties receiving honorable mention, and another over-subscribing their quota.

The Program Committee compiled lists of books and outlines on a mental hygiene program, which received much favorable comment from our members. The Public Relations Committee has given splendid suggestions for programs for lay organizations, and this year's health essay contest was participated in by 254 high school students. One of the principal interests of our organization is to promote the welfare of the public and educate it on the subject of health. We have accomplished this purpose to some extent, with the assistance and co-operation of the Speakers Bureau, and we do feel that we are putting young America on the "Road to Health". The Press and Publicity Committee has given splendid cooperation, under the able leadership of Mrs. Fred Moore. Interesting news items from county units, programs and messages from officers and chairmen appear on this page each month. We are grateful to the central office for mimeographing letters and mailing them with the reprints.

All letters and material received from national headquarters have received prompt attention. I have sent out over 476 pieces of mail. Each county president received a questionnaire, but only nine were returned to me.

Mrs. H. B. Woods, chairman of exhibits, has solicited the county presidents for contributions for this department, and we shall also be represented at the national convention this year. Mrs. E. L. Bower, our historian, was requested to forward a copy of the "First Ten Years" of Iowa's Auxiliary History, which will be included in the national exhibit. We are especially proud of Mrs. S. E. Lincoln, a past president of our auxiliary, who is serving as president for the Iowa Parent and Teachers Association.

As your president I wish to express my appreciation and gratitude to officers, chairmen of committees, county presidents and members of the Woman's Auxiliary, for your loyal support and splendid cooperation during the past year.

Mrs. E. A. Hanske

President Elect's Report

As your president elect I submit the following report: In September I attended the meeting of the Board of Directors and County Presidents. In January I attended a meeting of the Adair County Medical Society and the wives of its members, at which organization of a county auxiliary was discussed. Plans were made for a meeting to organize, but it was later decided to give up the plan, because there are only eight doctors in the county, and they have no regular time of meeting. I attended the luncheon and board meeting at Mrs. Hornaday's home in February. Throughout the year I have urged our various organizations to become more active in health education. I have placed *Hygeia* in our schools in Stuart.

Mrs. E. T. Warren

First Vice President's Report

The first vice president is chairman of the organization committee, and has as her committee the three vice presidents and the president elect. Our first step was to contact the county medical societies of unorganized counties, and secure their permission to attempt organization. The state was subdivided, each member writing to ten or more counties. Of those contacted by me, only two definitely approved our work for this year; others felt they were not quite ready, and a few did not even answer the letter. My committee sent out the announcements of "Medicine in the News" in our letters. Additional copies of our monthly page in the JOURNAL were sent to prospective counties, and copies of the constitution and by-laws were mailed to those requesting them. Two articles were written for our monthly page in the JOURNAL. Fifty-five personal letters were written.

Mrs. W. R. Hornaday

Second Vice President's Report

I have contacted Superintendent Arthur Deamer in regard to the various high schools participating in the health essay contest on the "Road to Health", and provided him with the necessary literature and instructions. I have distributed "Medicine in the News" radio announcements in prominent business places and offices. I have contacted the presidents of the following medical societies in regard to organizing auxiliaries in their counties; Marshall, Tama, Benton, Linn, Jones, Poweshiek, Iowa, Johnson, Cedar and Keokuk. I received replies from Marshall, Benton, Johnson and Linn counties. These have been filed with Mrs. W. R. Hornaday for future reference.

Mrs. Frederick W. Mulsow

REPORTS OF COMMITTEES

Program

The Program Committee of the Woman's Auxiliary to the Iowa State Medical Society submits the following report: Mental hygiene was the subject chosen for study during the year 1939-1940. The Iowa State Medical Library and the Iowa State Traveling Library cooperated with the Program Committee by furnishing lists of mental hygiene books to be loaned to individuals and county auxiliary units upon request. The Woman's Auxiliary News page in the JOURNAL of the Iowa State Medical Society was used for the following publications:

Mental hygiene book lists from the state libraries (August issue)

Article on Personality by Mrs. Henry G. Decker (September issue)

Mental hygiene study outline (October issue)

Notice of health broadcasts "Medicine in the News" (January issue)

Article on Preschool Mental Hygiene by Mrs. Dwight C. Wirtz (March issue)

Upon request the study outline and suggestions for a mental hygiene reading course and pamphlets on mental hygiene subjects, were sent to individuals and clubs outside the Auxiliary. The study outline was also used by the Iowa Parent-Teachers Associations in their mental hygiene work. Three hundred pamphlets on sex hygiene from the Iowa State Department of Health were distributed to members of Parent-Teachers Associations and clubs interested in mental hygiene. Four hundred posters and blotters advertising the radio program "Medicine in the News," sponsored by the American Medical Association, were distributed in Iowa. Notices of these broadcasts were also published in the *Midland Schools*, a magazine sent to the 25,000 principals and teachers in both public and private schools in Iowa,

and the *Iowa Parent-Teachers Magazine*, which has a circulation of 3,700, and goes to parent-teachers units, presidents and board members, and all county, city and town superintendents having parent-teachers associations in their schools.

Mrs. Russell C. Doolittle

Hygeia

Two notices have been sent to all organized auxiliaries, and I have received replies from the following eight county units.

Pottawattamie County

Twenty-two one-year subscriptions for the public and parochial schools in Council Bluffs, Carson and Underwood.

One three-year subscription for our Public Library.

Mrs. M. C. Hennessy

Cass County

Has been in city library and high school in Atlantic for several years.

Mrs. Earl C. Montgomery

Dubuque County

Twenty one-year subscriptions; one two-year subscription; one six-month subscription.

Mrs. Donovan F. Ward

Woodbury County

Twenty-two one-year subscriptions, Doctors' offices; three one-year subscriptions, Senior High Schools; one one-year subscription, Morningside College; four one-year subscriptions, Public Libraries; four one-year subscriptions, Junior High Schools; one one-year subscription, Cathedral High School.

Mrs. Aaron Q. Johnson

Osceola County

One one-year subscription, Osceola Hospital; one one-year subscription, Curley Beauty Shop; one one-year subscription, R. W. Ralston; one one-year subscription, Dr. H. B. Paulsen; one one-year subscription, Samaritan Hospital; one one-year subscription, Mrs. W. Vander Wilt; one one-year subscription, Dr. Frank Reinsch; one six-month subscription, Ashton Parochial School; one one-year subscription, Public Library; one one-year subscription, Sibley High School; one one-year subscription, Dr. F. P. Winkler; one one-year subscription, Ashton Public School.

Mrs. F. P. Winkler

Jackson County

One one-year subscription, Bellevue Library; one one-year subscription, Bellevue Public Schools; one one-year subscription, St. Joseph's School; and eight renewals.

Mrs. George C. Ryan

Dallas-Guthrie Auxiliary

Thirty one-year subscriptions.

Mrs. Marion H. Brinker

Polk County

Forty one-year subscriptions to Des Moines Public Schools.

Mrs. T. B. Throckmorton

A special word should be said about Dubuque County, where auxiliary members over-subscribed their quota, and Dallas-Guthrie Auxiliary, which was one of sixteen county units in the United States to receive honorable mention from the National Auxiliary for their success in placing *Hygeia* subscriptions.

Mrs. F. P. Winkler

Press and Publicity

The Auxiliary has again this year found the page allowed us in the JOURNAL of the Iowa State Medical Society an excellent channel for presenting the work of the officers, chairmen and units of the organization. As chairman of your press and publicity committee I am deeply grateful for the splendid cooperation you have given me in making the page more expressive of the work we are doing.

Mrs. Hanske, our president, has used it for greetings and reports and announcements. The program chairman presented a very fine suggested program for mental hygiene for use in our auxiliaries; two members of the program committee prepared articles for the page; organizational work, the public relations program and the health essay contest were promoted through it. It carried reports of national and state meetings as well as announcements of radio programs so that they might be shared by all of you. The real cause for rejoicing comes from the reporting of county units. We have had meetings reported by seven of our county organizations; five of them have reported two and three times during the year. This really is progress, and should promise fine cooperation another year. The Iowa State Medical Society has again mailed reprints of the auxiliary page to each auxiliary member so that the news would be available to all, even if the JOURNAL did not get to the house. May I express our appreciation of this fine helpful service.

There is probably no other single activity of the auxiliary so dependent upon many people as our auxiliary page. There also is probably no other channel more important if we are to become a unified social force. It is necessary that we all, officers, chairmen of committees and county organizations, bring it our best.

Mrs. Fred Moore

REPORTS OF COUNTY PRESIDENTS

Cass County

Our auxiliary supported the state health essay contest, and an Atlantic girl, Miss Mary Alice Becker,

won honorable mention. We placed *Hygeia* in the Public Library and in the School Library. We publicized the radio broadcasts on "Medicine in the News". Our members have given book reviews on topics of health education. We participated in the campaign conducted by the Women's Field Army against cancer. We have twelve active members.

Mrs. Earl C. Montgomery

Dallas-Guthrie Auxiliary

The Dallas-Guthrie Auxiliary had a very profitable and interesting year during 1939. Since the auxiliary is composed of women from two counties, it has been found most advantageous to hold the business meetings at the same time the County Medical Society has its meeting. The two societies meet the third Thursday of every third month; namely, January, April, July and October. A noon-day dinner is enjoyed together, and then the two societies have their separate business meetings during the afternoon.

The auxiliary had a membership of twenty-nine during 1939, but has added several new members during the early part of 1940; until almost every eligible woman in the two counties belongs. We have an average attendance of twenty at our business meetings.

The President, Mrs. Seidler, grouped the members into four committees, each committee representing the women from four or five towns adjacent to each other, and each group is responsible for one program during the year. These programs have been unusually interesting and well prepared; various timely subjects were discussed, such as mental hygiene, child psychology, etc.

The Auxiliary has been active in obtaining subscriptions to *Hygeia*; winning a trophy in the national contest during the past few months. They also took an active part in sponsoring the health essay contest, donating \$5.00 toward the expense of the contest. They have donated \$5.00 for this purpose every year since the contest was started.

In addition to their four daytime meetings during the year, the Auxiliary sponsors a monthly dinner-bridge party for the members and their husbands; and these parties have been instrumental in promoting a fine feeling of friendship among the doctors and their wives in the two counties. These parties are held on the first Monday night of each month, in various towns in the two counties. A fifty-cent dinner is served, usually by some organization in the town; and an extra charge of ten cents per person is levied to cover the cost of bridge prizes. These parties have been held regularly for several years, with an average attendance of around forty.

Mrs. Marion H. Brinker

Dubuque County

The auxiliary held four meetings during the past year. The March meeting was held at the Julien

Dubuque Hotel. The November, January and February meetings were held at the Elks Club. All were luncheon meetings; the average attendance was thirteen. There were seventeen active members.

Mrs. Hilger, Superintendent of Finley Hospital, was guest and speaker at our November meeting, and Mrs. Parrish representing Mother Ursula of Mercy Hospital, addressed our February meeting. It was decided to continue our present system of having four meetings during the year. Three projects have been undertaken; one, providing *Hygeia* for the local schools and introducing it more generally to the public; two, sponsoring the annual health essay contest in our schools; and three, sponsoring a program for the University Department of the Women's Club.

At the close of the fourth year of our Auxiliary it is evident that we have not been very active. However, we have enjoyed our luncheon meetings and discovered at each meeting some interesting topic which stimulated discussion and furthered acquaintance among our group. We feel we should continue to meet four times a year and be prepared to undertake any new projects that may present themselves.

Mrs. John A. Thorson

Jackson County

We have been active during the past ten years, and at present have a 100 per cent membership, according to the County Medical Society; we have fourteen members. Our meetings are held at the time the County Medical Society meets, about four times a year. We join the doctors in their banquets and dinners, after which we retire to the home of one of our members for our business meeting and programs which usually consist of a paper on health projects or a book review.

We contributed \$5.00 to the health essay contest fund, and two of Jackson County's High School students won honorable mention this year. We secured three new *Hygeia* subscriptions, two were placed in our schools and the other in the Library; there were eight renewals. The Auxiliary assisted the Society in celebrating the fiftieth anniversary of Dr. Dennison's medical career. Dr. F. P. McNamara, president-elect of the Iowa State Medical Society was the speaker and many of the doctors present paid glowing tribute to our esteemed doctor. Mrs. Hanske wrote and read a beautiful tribute in rhyme for this occasion.

Since we are a small unit we do enjoy the social hour after the business meeting. It has established good fellowship among our members, and also in the Medical Society.

Mrs. E. L. Lampe

Madison County

The Auxiliary to the Madison County Medical Society paid nine memberships to the state treasurer, which is 100 per cent. We meet once a month, have

dinner with the doctors, and then conduct our own business meeting. A paper on Mental Hygiene was presented by an auxiliary member at one of the meetings. We placed *Hygeia* in the schools at St. Charles and Truro.

Mrs. John F. Veltman

Muscatine County

The Woman's Auxiliary to the Muscatine County Medical Society held four meetings during the past year. There are eighteen members in the society, and we have had an average attendance of eleven. Regular business meetings were held in March and October. Both were luncheons at the Y.W.C.A., followed by a social hour. Mrs. Warfel of the local welfare office addressed members at the November meeting, discussing the work of the welfare organization in Muscatine County. This was a very informative, as well as interesting lecture. The annual election of officers was held in February. Mr. Mark spoke on his teaching among the deaf and hard of hearing children in the city. Members were privileged to invite guests, and several were in attendance. The total number of *Hygeia* subscriptions secured during the past year by our auxiliary is twenty-three one-year and twelve nine-month subscriptions.

Mrs. L. C. Howe

Northwest Iowa Unit

Dues are slow in coming in, since the Northwest District Medical Society meeting has been postponed until the middle of May. However, we hope to have twenty members to report for 1940. A joint picnic was held in August at the Sheldon Country Club. A tea is being planned for the last week in May, whereby we hope to arouse new interest and enthusiasm.

Mrs. Walter Vander Wilt

Polk County

Only four meetings of the Woman's Auxiliary to the Polk County Medical Society were held during the year, and they were social in nature, with book reviews on one afternoon. The only significant action during the year was the addition of an amendment to the Constitution and By-laws, creating the office of president elect, in line with other state and national auxiliaries. Polk County had the pleasure of sending in the subscriptions to *Hygeia* for the forty public schools in Des Moines.

Mrs. Cecil C. Jones

Pottawattamie County

Our theme during the year just closed has been to provide well planned programs in which an increasing number of our members have participated. At the close of our calendar year we have a member-

ship of forty, with three potential members waiting to become eligible.

In April, we met for luncheon at Hotel Chieftain at which time our school nurses demonstrated the audiometer used for hearing tests in our public schools. In May, we were hosts to the graduating classes of the nursing schools of both hospitals at a beautifully appointed tea at the home of Mrs. Lloyd G. Howard. Mrs. Karl Werndorff entertained the large gathering with an interesting talk on her experiences in Vienna.

The first program meeting after the summer vacation was held at the home of Mrs. Joseph L. Stech, in the form of a tea. In addition to a delightful musical program given by a member of our group, those in attendance were favored by an illustrated talk on Canada given by Mrs. Matt A. Tinley. In December we dispensed with our regular meeting so that our Christmas Committee could devote its time in supplying food, clothes and toys for eighteen people. In January we met at the home of Mrs. M. C. Hennessy for a luncheon. At this meeting Mrs. E. A. Hanske, of Bellevue, our state president, was an honored guest. In February the wives entertained the husbands at a dinner party at the home of Dr. and Mrs. Grant Augustine. Fifty-two were in attendance at this congenial gathering.

We allocated five dollars from our treasury for the state health essay contest. The *Hygeia* committee, under the able chairmanship of Mrs. M. C. Hennessy, raised sufficient money to place twenty-four subscriptions in all the public and parochial schools in Council Bluffs, as well as in the two consolidated schools in the county. In addition to their interest in the auxiliary most of our members are actively engaged in charitable, civic educational organizations, whose purpose is to promote the general welfare of our community.

In closing I wish to express my gratitude for the privilege of serving our auxiliary in this important capacity. Further, I wish to express my appreciation to the committee chairmen and membership at large whose work and cooperation made this past year successful.

I convey to the society in the able leadership of our new president, Mrs. A. A. Robertson my sincere wishes for a most successful year.

Mrs. Isaac Sternhill

Washington County

We have reorganized, and now have ten members with dues paid. Our meetings are held quarterly. Practically all members cooperate or take leadership in all health programs of various organizations. We are interested in and read the auxiliary page in the JOURNAL of the Iowa State Medical Society. Some essay contest work was carried on in the county. *Hygeia* was placed in the Washington High School and Public Library, and also in the Wellman High School. The auxiliary contributed two dollars to the cancer control fund. The auxiliary joins the County Medical Society in the annual turkey banquet held each fall in Wellman.

Mrs. E. D. Miller

Woodbury County

The Sioux Med-Dames meet in four regular sessions, June, September, December and March; every other year an extra meeting in January is held, at which time the doctors' wives of the Sioux Valley Medical Society are their guests.

Our meetings are usually two teas in the homes of our members, and two luncheons. However, this year we put aside the regular order slightly and had a most delightful June breakfast in the home of Mrs. James W. Graham. After the regular business meeting we enjoyed a musical program by guest artists. The fall meeting was held in the lovely new home of Mrs. Peirce D. Knott in September. One of the pupils from the Sioux City Dramatic School read several selections. Tea was served. The Christmas party was held in the new Mayfair Hotel. The customary silver offering was taken for the Goodfellow Christmas Fund. To leave us all with the Christmas spirit we joined together in singing many Christmas carols. March, of course, is election of officers and dues-paying time. Mrs. Samuel E. Sibley graciously opened her home for the tea. Our historian gave a very interesting and comprehensive account of the highlights in the 1939-1940 lives of our members. After an interesting book review by a guest, tea was served.

In addition to these four regular meetings, the Sioux Med-Dames this year entertained the doctors' wives of the Sioux Valley Medical Society at a two-day program in January. A bridge tea was held the first day at the Martin Hotel, followed in the evening by a banquet with the doctors. The second day a luncheon was held at the Warrior Hotel. Mrs. Wayland K. Hicks, one of our own members, sang several beautiful numbers. In spite of the inclement weather about twenty-five out-of-town guests were entertained sometime during the two days. Among our guests we were especially privileged to have our own state president, Mrs. E. A. Hanske of Bellevue, who brought us a message on "The Place we as Doctors' Wives Play in the Community."

Members of Sioux Med-Dames are not only interested in the society socially, but are active in many health projects and civic enterprises. They take an active part in the Cancer Campaign and the Red Cross Drive; many are interested in Girl Scouts, P. T. A., Women's Club, A. A. U. W., etc. Our membership numbers forty-two, the average attendance this year has been thirty-three. Because of the splendid cooperation and unity we have had between our members, committees and officers, we have closed a very pleasant and happy year.

Mrs. Aaron Q. Johnson

Dubuque County Meeting

Sixteen members of the Woman's Auxiliary to the Dubuque County Medical Society met for luncheon Tuesday, May 28, at the Elks' Club in Dubuque. The meeting was conducted by our new President, Mrs. Matthew J. Moes. After hearing a report of the state meeting of the Auxiliary at Des Moines, which proved to be most interesting, by our delegate, Mrs. Carl W. Smith, we adjourned for the summer.

Mrs. Ray R. Harris, Secretary

SOCIETY PROCEEDINGS

Calhoun County

Raymond J. Jackman, M.D., of Rochester, Minnesota, was guest speaker for the Calhoun County Medical Society at a meeting held Tuesday, May 21, at the High School Auditorium in Rockwell City. Dr. Jackman spoke on The Treatment of Anorectal Diseases.

Chickasaw County

The Chickasaw County Medical Society met at the Towne Taverne in New Hampton, Thursday, May 16, at which time Chester L. Putnam, M.D., of Manchester, connected with the State Department of Health, discussed the Public Health Nursing Program.

Decatur County

The regular meeting of the Decatur County Medical Society was held at the Hospital in Leon, Friday, April 26, with Dennis H. Kelly, M.D., and Carl F. Jordan, M.D., both of Des Moines, presenting and discussing the State Department of Health motion picture film on the Diagnosis and Treatment of Pneumonia.

A joint meeting of the Decatur County Medical Society and the staff of the Decatur County Hospital was held at the Hospital at Leon, Tuesday, June 4. After dinner Julian E. McFarland, M.D., of Ames addressed the group on the subject of Obesity. After the paper Dr. Earl B. Bush, of Ames, president elect of the Iowa State Medical Society, spoke on Medico-Political Conditions at Present.

M. W. Rogers, M.D., Secretary

Floyd County

A round table discussion on obstetrics and pediatrics was conducted by Addison W. Brown, M.D., and Arnold M. Smythe, M.D., both of Des Moines, for members of the Floyd County Medical Society and the staff of the Cedar Valley Hospital at a dinner meeting Tuesday, May 28, at Cedar Inn in Charles City.

Hardin County

Walter D. Abbott, M.D., of Des Moines, presented an illustrated lecture on Lower Back Pain, for members of the Hardin County Medical Society, at a dinner meeting held in Eldora, Tuesday, May 28.

W. E. Marsh, M.D., Secretary

Linn County

The annual election of officers for Linn County Medical Society, held in Cedar Rapids, Wednesday,

May 22, resulted as follows: Dr. Howard R. Hess, president; Dr. Arthur E. Crew of Marion, vice president; Dr. Don S. Challed, secretary; Dr. Robert C. Locher, treasurer; and Dr. Thomas F. Hersch was re-elected editor of the Linn County Bulletin. Dr. Howard L. Van Winkle was named president elect.

Mitchell County

The Mitchell County Medical Society met at the home of Dr. George E. Krepelka in Osage, Tuesday, June 4. At the business meeting it was decided to examine the 4-H group for \$1.00 each, if fifty or more were to be examined. The secretary was instructed to ask for a list of speakers from the Speakers Bureau.

R. A. Culbertson, M.D., Secretary

Muscatine County

The Muscatine County Medical Society convened for a dinner meeting, Thursday, May 23 at the Hotel Muscatine in Muscatine. Norbert C. Barwasser, M.D., of Davenport, furnished the scientific program of the evening, speaking on The Management of the Commoner Skin Diseases.

Pottawattamie County

A symposium on appendicitis was presented at the meeting of the Pottawattamie County Medical Society, Tuesday, May 21, at the Hotel Chieftain in Council Bluffs. William E. Hay, M.D., spoke on the diagnosis of the disease, and gave a detailed study of the mortality statistics; Arnold L. Jensen, M.D., discussed the pathology; and Fred H. Beaumont, M.D., closed the symposium with a paper on the treatment of appendicitis.

Sac County

Twenty doctors from Sac and adjacent counties met at the Hotel Park in Sac City, Monday, May 27, for the regular monthly meeting of the Sac County Medical Society. The speaker of the evening was William L. Sucha, M.D., associate professor of orthopedic surgery, Creighton University School of Medicine, Omaha, who discussed Fractures in their Relation to Automobile Injuries. An interesting discussion followed his address. At the business meeting it was decided to examine the 4-H boys and girls of the county in a series of half-day clinics, and eight members of the society were appointed to the examining board. Dr. Sherman J. Deur of Lake View, resigned as president, and Dr. Chelsea D. Gibson, also of Lake View, was elected to the presidency for the remaining months of the year.

H. N. Neu, M.D., Secretary

Sioux County

Addison W. Brown, M.D., and Arnold M. Smythe, M.D., both of Des Moines, presented their round table discussion on obstetrics and pediatrics for members of the Sioux County Medical Society, Friday, June 14, at the Hawarden Hospital in Hawarden.

Iowa and Illinois Central District Medical Association

Officers of the Iowa and Illinois Central District Medical Association elected at the annual meeting of that organization held Thursday, May 16, at the Davenport Outing Club in Davenport, are as follows: Dr. Charles E. Robb of Rock Island, Illinois, president; Dr. Harold J. Evans of Davenport, Iowa, vice president; Dr. James Dunn of Davenport, Iowa, secretary; and Dr. Florens E. Bollaert of East Moline, Illinois, treasurer.

Northwest Iowa Medical Society

The Northwest Iowa Medical Society held its spring meeting Thursday, May 16, at the Harlington Hotel in Sheldon. Following the six-thirty banquet Ernest Kelley, M.D., associate professor of nervous and mental diseases, Creighton University School of Medicine, Omaha, addressed the society on What Shall We do for the Mental Patient.

Tri-County Medical Society

Jesse C. Painter, M.D., of Dubuque, presented an illustrated lecture on The Diagnosis of Tuberculosis, for members of the Tri-County Medical Society, Tuesday, June 11, at a meeting held in the Nurses' Home in Washington. The organization is composed of physicians residing in Jefferson, Henry and Washington counties.

PERSONAL MENTION

Dr. Fred M. Smith, head of the department of theory and practice of medicine, State University of Iowa, College of Medicine, was elected chairman of the section on Practice of Medicine, at the recent annual meeting of the American Medical Association in New York.

Drs. Martin J. Ryan and John S. Tracy, of Sioux City, announce the association of Dr. Robert C. Mugan with them in the practice of medicine.

Dr. John H. Peck, superintendent of the State Sanatorium at Oakdale, was installed as president of the American College of Chest Physicians at its recent annual session in New York.

Dr. William F. Carver of Fort Dodge has announced his retirement from active practice, after serving Fort Dodge for forty-one years.

Dr. Gordon F. Harkness of Davenport, was elected vice president of the American Laryngological Association at its sixty-second annual meeting held at the Westchester Country Club in New York, May 30.

MARRIAGES

The marriage of Miss Sarah Ellen Marti and Dr. Augustus B. Kuhl, Jr., both of Davenport, took place, Saturday, May 25, in Davenport. After a wedding trip they will be at home in Davenport, where Dr. Kuhl has practiced for the past few years.

Miss Mary Alice Dawson of Portsmouth, Ohio, and Dr. Max Krakauer of Davenport, were married Friday, June 7, at the home of the bride's parents in Portsmouth. They arrived in Davenport the middle of June, where Dr. Krakauer has been engaged in the practice of medicine for the past year.

DEATH NOTICES

Bowie, Cecil Claude, of Carroll, aged fifty-nine, died May 24 after a short illness. He was graduated in 1907 from the State University of Iowa, College of Medicine, Iowa City, and at the time of his death was a member of the Carroll County Medical Society.

DeLong, Samuel Warren, of Tingley, aged seventy-seven, died June 9, at the Greater Community Hospital in Creston, of heart disease. He was graduated in 1907 from Ensworth Medical College, St. Joseph, and had long been a member of the Ringgold County Medical Society.

Kober, Augustus Frederick, of Charles City, aged sixty-five, died June 6, of a chronic liver ailment. He was graduated in 1901 from the University College of Medicine, Richmond, Virginia, and at the time of his death was a Life Member of the Floyd County and Iowa State Medical Societies.

Lundby, John Langland, of Irwin, aged fifty-seven, died May 30, after a heart attack. He was graduated in 1910 from Northwestern University Medical School, Chicago, and at the time of his death was a member of the Shelby County Medical Society.

Thompson, William H., of Winterset, aged eighty-three, died May 16, after an extended illness. He was graduated in 1884 from the Jefferson Medical College of Philadelphia, and at the time of his death was a Life Member of the Madison County and Iowa State Medical Societies.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- TRAPPING THE COMMON COLD—By George S. Foster, M.D., Manchester, New Hampshire. Fleming H. Revell Company, 158 Fifth Avenue, New York, 1940. Price, \$1.25.
- THE NEWER NUTRITION IN PEDIATRIC PRACTICE—By I. Newton Kugelmass, M.D., Broad Street Hospital, New York. Illustrated. J. B. Lippincott Company, Philadelphia, 1940. Price, \$10.00.
- PNEUMOCONIOSIS (SILICOSIS): THE STORY OF DUSTY LUNGS—By Lewis Gregory Cole, M.D., Director of Silicotic Research, John B. Pierce Foundation, New York; and William Gregory Cole, M.D., New York. The John B. Pierce Foundation, 40 West 40th Street, New York, 1940. Price, \$1.00.
- ARTIFICIAL PNEUMOTHORAX—Edited by Edward N. Packard, M.D., John N. Hayes, M.D., and Sidney F. Blanchet, M.D. Illustrated. Lea and Febiger, Philadelphia, 1940. Price, \$4.00.
- THE 1939 YEAR BOOK OF GENERAL THERAPEUTICS—Edited by Bernard Fantus, M.D., professor of therapeutics, University of Illinois College of Medicine. The Year Book Publishers, Chicago, 1940. Price, \$2.50.
- SEX IN MARRIAGE—By Ernest R. Groves and Gladys Hoagland Groves. New edition, revised. Emerson Books, Inc., New York, 1940. Price, \$2.00.
- DIABETES: PRACTICAL SUGGESTIONS FOR DOCTOR AND PATIENT—By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Second edition, revised and enlarged. The F. A. Davis Company, Philadelphia, 1940. Price, \$2.50.
- DISEASES OF THE GALLBLADDER AND BILE DUCTS—By Waltman Walters, M.D., and Albert M. Snell, M.D., The Mayo Clinic, Rochester. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.
- CLINICAL ROENTGENOLOGY OF THE ALIMENTARY TRACT—By Jacob Buckstein, M.D., visiting roentgenologist, Bellevue Hospital, New York. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.
- SYNOPSIS OF OBSTETRICS—By Jennings C. Litzenberg, M.D., professor emeritus of obstetrics and gynecology, University of Minnesota Medical School. The C. V. Mosby Company, St. Louis, 1940. Price, \$4.50.
- SPECIALTIES IN MEDICAL PRACTICE, Two Volumes—Edited by Edgar van Nuys Allen, M.D., associate professor of medicine, University of Minnesota, Mayo Foundation. Thomas Nelson and Sons, New York, 1940. Price, \$25.00 per set.
- ST. THOMAS'S HOSPITAL REPORTS—Volume IV, Second Series. Published by St. Thomas Hospital, London, S.E.1, 1939. Price, 10s.
- OBESITY AND LEANNESS—By Hugo R. Rony, M.D., formerly associate in medicine and chief of endocrine clinic, Northwestern University School of Medicine. Lea and Febiger, Philadelphia, 1940. Price, \$3.75.
- THE 1939 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY—Edited by Joseph B. DeLee, M.D., professor of obstetrics, University of Chicago Medical School; and J. P. Greenhill, M.D., professor of obstetrics and gynecology, Loyola University Medical School. The Year Book Publishers, Chicago, 1940. Price, \$2.50.

BOOK REVIEWS

THE RECTUM AND COLON

By E. Parker Hayden, M.D., assistant in surgery, Harvard Medical School, Boston. Lea and Febiger, Philadelphia, 1939. Price, \$5.50.

Many rectal diseases are not properly diagnosed, partly because of the timidity of a patient; partly because the physician may be unfamiliar with some of the conditions, and partly because of the one cardinal sin, that of the failure of the doctor to look at the rectum.

This book by Dr. Hayden is a well written one which presents the salient features of diseases of the rectum and colon without loss of thought in a maize of detail. His presentation of symptoms of rectal conditions and their evaluation is very good. Methods of examination and anesthesia are covered, as well as preoperative and postoperative treatment. Much space is given, and justly so, to the treatment of hemorrhoids, and the author's evaluation of the methods is commendable. Perianal infections varying from simple cryptitis to rectal abscesses and fistulae are discussed at length. The section on diseases of the colon is of a more specialized nature and the conditions are not seen with the frequency of those noted in the rectum. However, the presentation is good and his "middle of the road" attitude is to be commended.

This book is well illustrated throughout and is a stimulant both to proper examination as well as understanding of rectal and colon conditions.

C. J. P.

ORTHOPEDIC OPERATIONS

By Arthur Steindler, M.D., professor of orthopedic surgery, State University of Iowa, College of Medicine. Charles C. Thomas, publisher, Springfield, Illinois, 1940. Price, \$9.00.

Here is a book long desired by orthopedic surgeons. Written by the dean of Iowa orthopedists, it comes from a surgeon preëminently qualified to serve as its author. In contrast to the usual textbook dealing with operative technic, special stress has been laid upon the indications and end results for specific orthopedic conditions, with complete bibliographic references at the end of each chapter.

The book is divided into three parts. The first part deals with general surgical facts and the general surgical approaches to operations; the second part gives the operative procedures on the several structures of the locomotor system; and the third part presents the precise clinical situations in which these operations are to be applied. The result is an orderly presentation of the author's experience in the field of operative orthopedic procedures, clearly and conveniently arranged, and cross-indexed for the reader's convenience. Abundant original illustrations are added to reinforce the text.

This book meets every orthopedic situation with clear and usable information. It should be included in the libraries of medical schools, students, surgeons and, more especially, orthopedic surgeons.

E. M. G.

HANDBOOK OF ORTHOPAEDIC SURGERY

By Alfred Rives Shands, Jr., M.D., medical director of the Nemours Foundation, Wilmington, Delaware; associate professor of surgery in charge of orthopaedic surgery, Duke University School of Medicine, Durham, North Carolina (on leave of absence). Second edition. The C. V. Mosby Company, St. Louis, 1940. Price, \$4.25.

This is a very concise book for the man in general practice whose work includes some orthopedic cases.

The material on each subject is brief and complete; it covers the main points of diagnosis without a lot of flowery detail. The volume, however, does not present all the complete surgical and corrective procedures which one finds in other books of orthopedic surgery. The diagrams are drawings and give the essential points which so frequently are more or less vague and confusing when interpreted by someone who is not familiar with x-rays of some of the orthopedic problems.

The reviewer feels that this is a valuable book for quick reference on any orthopedic deformity or problem, and is well worth the price paid for it.

D. C. W.

CLINICAL TOXICOLOGY

By Clinton H. Thienes, M.D., professor of pharmacology, School of Medicine, University of Southern California. Lea and Febiger, Philadelphia, 1940. Price \$3.50.

Most textbooks of toxicology contain lengthy descriptions of the properties and effects of all poisons known to affect the human being. Ordinarily the arrangement and length of these volumes are such as to make it difficult both for the study of the subject in general and for the study of any particular case.

Dr. Thienes has prepared a compact volume which has several new features. First, there is an outline of symptom diagnosis, grouping the drugs and poisons under symptoms produced, such as: convulsions, respiratory depressions, skin changes, fever, urinary changes, et cetera. The second feature is the inclusion of several chapters on the principles of treatment including measures to decrease absorption, physiologic antagonisms of poisons and general care of the poisoned patient. The third practical variation is the grouping of poisons according to their principal action, so that the cerebral convulsants, for instance, are discussed together. In this way a clearer differentiation between poisons having a similar action can be made than is possible with older textbooks in which the poisons are arranged in alphabetical order. The discussion of each poison is outlined under several heads: toxic dose, source, absorption, etiology, symptoms and actions, fate and excretion, pathology, diagnosis, cause of death and treatment. Thus all the material is read-

ily accessible for consultation and the terse form in which the book is written leaves nothing to be desired as to availability of the material presented.

The book concludes with a schema for the chemical and biologic analysis of tissues for poisons. It is only this latter part which may be of little use to the general practitioner; otherwise the work is to be highly recommended for every practicing physician.

J. E. K.

ESSENTIALS OF THE DIAGNOSTIC EXAMINATION

By John B. Youmans, M.D., associate professor of medicine, Vanderbilt University Medical School. The Commonwealth Fund, Oxford University Press, New York, 1940. Price, \$3.00.

This small compact text is a compilation of all the recognized valuable methods and procedures which can be utilized daily by the practitioner. It affords a plan for diagnosis and briefly sketches the significance of pathologic findings.

The author opens his remarks with an outline of the history and physical examination. Part II deals specifically with the examinations of urine, feces, stomach contents, sputum, body fluids and exudates, spinal fluid, blood and blood chemistry and skin tests. Part III mentions briefly some miscellaneous tests and their significances. An appendix contains pertinent facts about the office laboratory and what is necessary for its completion.

Many illustrations and charts add to the simplicity of this text which is replete with valuable information. The book will prove to be a stimulating reminder of the value of the laboratory in everyday diagnostic procedures.

J. W. C.

MINOR SURGERY

By Frederick Christopher, M.D., associate professor of surgery, Northwestern University Medical School. Fourth Edition, reset. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.

Christopher's Minor Surgery has long been recognized as an authoritative and excellent work. This, the fourth edition, contains revisions and additions in keeping with recent advances in the field. The illustrations are plentiful, there being in all 639, and these are presented in such a way as to enhance greatly the practical value of the text. In addition to its value as a reference book for the practitioner, there is an excellent chapter on hospital technic for the enlightenment of the surgical interne. This book continues to be a required volume for the practical reference library of the practitioner.

D. W. C.

PSYCHOBIOLOGY AND PSYCHIATRY

By Wendell Muncie, M.D., associate professor of psychiatry, Johns Hopkins University. The C. V. Mosby Company, St. Louis, 1939. Price, \$8.00.

Psychobiology is concerned with "total personality" as evaluated by a study of the individual from birth to date, including history, environment and all clinical, chemical, biologic and psychologic findings. This concept of psychiatry was elaborated by Adolph Meyers in 1912 and is now used as the basis for a textbook by Dr. Muncie.

The first chapter recounts the historical and philosophic bases of psychobiology. Later chapters describe in detail the student's formal study of himself and others, which includes all personal, clinical, psychometric and laboratory findings, and an attempt to integrate them to explain the normal personality, thus familiarizing the student with the means for complete study of abnormal personality. Comparisons are made with Kraepelinian, psychoanalytic, behavioristic and other schools of psychiatry, and objections to the psychobiologic method are met. The neuroses and psychoses are grouped according to the reaction type classification of Meyers, and studied for diagnostic and therapeutic purposes from the total personality or psychobiologic standpoint. Detailed illustrative case reports are used freely. The section on treatment is exceptionally good particularly in connection with the excited, depressed and neurotic states. The general principles of shock treatment are well covered and the arguments pro and con are frankly stated. The Meyers nomenclature, while logical and conducive to accuracy in statement, will be found confusing until thoroughly mastered.

This is a useful text for the advanced student already well grounded in psychiatry and for the psychiatrist wishing to quicken his interest in psychiatry by means of a different and more comprehensive approach.

R. C. D.

INJECTION TREATMENT OF HERNIA, HYDROCELE, GANGLION, HEMORRHOIDS, PROSTATE GLAND, ANGIOMA, VARICOCELE, VARICOSE VEINS, BURSAE AND JOINTS

By Penn Riddle, M.D., assistant professor of clinical and operative surgery, Baylor University, College of Medicine. Illustrated. W. B. Saunders Company, Philadelphia, 1940. Price, \$5.50.

In this concisely and beautifully illustrated work, the author has clearly outlined the diagnosis and technic of injection treatment of a number of rather commonly occurring diseases.

The strength of this book in a large part lies in the fact that it is generously and clearly illustrated, especially with regard to the actual technics of treatment. The chapter on hernia is quite complete, and in addition to the discussion of the indications for

and performance of injection treatment, it discusses that all important consideration, the proper selection and fitting of trusses. The treatment of varicose veins is well presented and illustrated as is also the treatment of hydrocele; the injection treatment of hemorrhoids is likewise well dealt with. In addition to these considerations, the author also discusses the injection treatment of the prostate gland, varicocele, bursae, joints and angiomas. In general the reviewer feels that this book is to be recommended to those desiring information concerning the injection treatment of the diseases mentioned. D. W. C.

DIFFERENTIAL DIAGNOSIS IN INTERNAL MEDICINE

By Prof. Dr. Med. O. Naegeli, late director of the University Clinic of Zurich, Switzerland. Translated by Simon B. Spilberg, M.D., Mt. Sinai Hospital, Milwaukee, Wisconsin. S. B. Debour, Publishers, Chicago, 1940. Price \$10.00.

This diagnostic treatise is a new arrival in American medical literature, having been recently translated. The author's own style was retained by the translator, which preserves the continental atmosphere of the work, but makes the reading somewhat laborious.

The author attempts to present the problem of differential diagnosis in a gross form, in the main, and he stresses the fact that minor signs in medicine are not important in attempting a diagnosis. The text does not contain general descriptions of diseases, but rather emphasizes various symptom complexes, such as abdominal hemorrhage, dyspnea, angina, splenomegaly, etc.

The text includes chapters on anemia, polycythemia, leukemia, the lymph glands, spleen, liver, abdominal and intestinal diseases, pulmonary diseases, status febrilis, joints, esophagus, cardiovascular system, kidneys, nervous system and internal secretions. Each chapter deals specifically with major considerations pertaining to that particular part of the organism.

This book will prove of value as a reference for the internist and as ready consultation for the general practitioner. J. W. C.

THE OFFICIAL ISSUE

This issue of the JOURNAL carries the Minutes of the Eighty-ninth Annual Session, the Transactions of the House of Delegates, and the roster of members of the Iowa State Medical Society in good standing as of June 25, 1940. Save this JOURNAL for future reference.

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of the
Iowa State Medical Society
1940



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 Fail, Charles S., Jr., Adel
 Fallows, Howard D., Mason City (L.M.)
 Farlow, Charles T., Farnhamville
 Farnham, Alfred J., Traer
 Farnsworth, Harold E., Storm Lake
 Farnum, Earl P., Sibley
 Faust, John H., Manson
 Fay, Oliver J., Des Moines
 Fee, Charles H., Denison
 Fee, Knight E., Toledo
 Feightner, Robert L., Fort Madison
 Feller, Alto E., Boston, Massachusetts
 Fellows, Joseph G., Ames
 Fellows, Liberty E., Newton
 Felter, Allan G., Van Meter
 Fenlon, Leslie K., Clinton
 Fenton, Charles D., Bloomfield
 Fenton, Robert L., Centerville
 Field, George A., Des Moines
 Field, Grace E., Williams, Nashville, Tenn.
 Fields, Robert B., La Porte City
 Files, Edward H., Cedar Rapids
 Fillenwarth, Floyd H., Charles City
 Findley, William J. K., Sac City (L.M.)
 Fisch, Roman J., Le Mars
 Fisher, William C., Williamson
 Fitzgerald, Joseph D., Sloan
 Fitzpatrick, Dennis F., Iowa City
 Flater, Norman C., Floyd
 Flax, Ellis, Iowa City
 Fleck, Warren L., Fargo, North Dakota
 Fleischman, Abraham G., Des Moines
 Fletcher, Frederick W., Hinton
 Flickinger, Roger R., Mason City
 Flocks, Rubin H., Iowa City
 Floersch, Eugene B., Council Bluffs
 Floyd, Mark L., Iowa City
 Foley, Fred C., Newell
 Foley, Walter E., Davenport
 Foltz, Eloise G., Perry
 Ford, Frank R., Wellsburg
 Fordyce, Frank W., Des Moines
 Forsyth, Manley, Fremont
 Foster, Jess W., Ankeny
 Foster, Morgan J., Cedar Rapids
 Foster, Samuel T., Adel
 Foster, Warren H., Clinton
 Foster, Wayne J., Cedar Rapids
 Foulk, Frank E., Des Moines
 Fourt, Arthur S., Iowa City
 Fowler, Charles C., Lovilia
 Fowler, Willis M., Iowa City
 Fox, Charles I., Pella (L.M.)
 Fox, Ray A., Charles City
 Franchere, Chetwynd M., Mason City
 Frank, Louis J., Sioux City
 Frank, Owen L., Maquoketa
 Franklin, George W., Jefferson
 Fransco, Peter P., Ruthven
 Frantz, Charles P., Burlington
 Fraser, John H., Monticello
 Frech, Raymond F., Newton
 Frederickson, Adolph R., Lansing
 Freedland, Morris E., Callender
 Freligh, Clarence N., Waucoma
 French, Charles H., Cedar Rapids (L.M.)
 French, Royal F., Marshalltown
 French, Valiant D., Carson
 Frey, Harry E., Fairfield
 Fritchen, Arthur F., Decorah
 Fritschel, Godfrey C., Dubuque
 Fritz, Lafe H., Dubuque
 Fry, John L., Kalona
 Fuerste, Frederick, Dubuque
 Fuller, Frank M., Keokuk
 Fullerton, Oscar L., Redding (L.M.)
 Fullgrave, Emil A., Indianola
 Fulliam, Edmond B., Jr., Muscatine
 Furgerson, Lee B., Waterloo
 Gaard, Rasmus R., Radcliffe
 Galinsky, Della, Sioux City
 Galinsky, Leon J., Oakdale
 Gallagher, John P., Oelwein
 Galloway, Milton B., Webster City
 Galman, James J., Hospers
 Galvin, Robert J., Oelwein
 Gambee, Eric J., Earling
 Gamble, Robert A., Madrid
 Gamet, Elmo E., Lamoni
 Gano, James O., Ogden
 Gantz, Albert J., Greenfield
 Gardner, Charles W., Mt. Pleasant (L.M.)
 Gardner, Harold O., Waterloo
 Gardner, John R., Lisbon
 Gardner, Paul E., New Hampton
 Garlinghouse, Robert O., Iowa City
 Garner, William A., Kiron*
 Garside, Arthur A., Davenport
 Gaukel, Leo A., Onawa
 Gaumer, James S., Fairfield
 Gearhart, George W., Springville
 Geeseka, Otto A., Mt. Pleasant (L.M.)
 George, Everett M., Des Moines
 George, Joseph, Dows
 Gerken, James F., Waterloo
 Gernsey, Merrit N., Waverly
 Gessner, Frederick W., Dysart
 Getty, Everett B., Primghar
 Gibbon, William H., Sioux City
 Gibson, Chelsea D., Lake View
 Gibson, Douglas N., Des Moines
 Gibson, Paul E., Des Moines
 Gibson, Preston E., Davenport
 Gifford, Albert K., Cedar Rapids
 Giles, George C., Oakland
 Gilfillan, Bruce L., Keokuk
 Gilfillan, Clarence D. N., Eldon
 Gilfillan, Earl E., Memphis, Missouri
 Gilfillan, George W., Bloomfield
 Gilfillan, Homer J., Cantril
 Gillespie, Hamilton S., Sioux City
 Gillett, Francis A., Oskaloosa
 Gillies, Carl L., Iowa City
 Gillmor, Benjamin F., Red Oak
 Gingles, Earl E., Onawa
 Gittins, Thomas R., Sioux City
 Gittler, Ludwig, Fairfield
 Givens, Hezekiah F., West Bend
 Glasscock, Thomas J., Hawarden
 Glesne, Orvin G., Monona
 Glesne, Otto N., Fort Dodge
 Glew, Percival B., Dallas Center
 Gleysteen, Derk J., Alton
 Gleysteen, Rodney R., Alton
 Gloeckler, Bernhard B., Mt. Pleasant
 Glomset, Daniel J., Des Moines
 Goad, Robley R., Muscatine
 Goen, Edwin J., Manchester
 Goenne, William C., Davenport
 Goggin, John G., Ossian
 Goldberg, Louie, Des Moines
 Goodenow, Sidney B., Colo
 Goodrich, Joseph A., Des Moines
 Gordon, Arnold M., Des Moines
 Gorrell, Ralph L., Clarion
 Gottlieb, Jacques S., Iowa City
 Gottsch, Erwin J., Shenandoah
 Gould, George R., Conrad
 Gould, Isaac L., Kellogg
 Gower, Walter E., Pocahontas
 Graber, Harold E., Fairfield
 Graening, Charles H., Waverly (L.M.)
 Graening, Paulus K., Waverly
 Graham, George W., Collins
 Graham, James W., Sioux City
 Gran, Albert G., Storm Lake
 Grant, Cecil C., Cedar Falls
 Grant, John G., Ames
 Grau, Amandus H., Denison
 Gray, Henry A., Keokuk
 Gray, Howard D., Des Moines
 Gray, Ralph E., Eldora
 Gray, Samuel T., Albia (L.M.)
 Grayston, Jesse T., Cedar Rapids
 Greene, James A., Iowa City
 Greenleaf, William S., Atlantic
 Greenlee, Max R., Oskaloosa
 Greteman, Theodore J., Iowa City
 Griffin, Clark C., Jr., Vinton (L.M.)
 Griffin, Frank L., Baldwin
 Griffin, John M., Des Moines
 Griffin, Sarah M. F., Manson
 Grimm, Peter G., Spirit Lake
 Grinley, Andrew V., Rockwell City
 Groman, August, Odebolt (L.M.)
 Grossman, Edward B., Orange City
 Grossman, Milton, Sioux City
 Grossman, Raymond S., Marshalltown
 Grothaus, Dell L., Delta
 Grove, Emil G., Boone
 Grubb, Merrill W., Galva
 Gunn, Ross E., Boone

- Gurau, Henry H., Des Moines
 Gutch, Roy C., Chariton
 Hagen, Edward F., Decorah
 Haines, Diedrich J., Des Moines
 Haisch, Lily K., Dubuque
 Haisch, Otto E., Dubuque
 Hale, Albert E., Dougherty
 Hale, William H., Iowa City
 Hall, Bonnybel A., Maynard
 Hall, Cluley C., Maynard
 Hall, Forest F., Webster City
 Hall, Harry P., Atlantic
 Halloran, William H., Audubon
 Halpin, Lawrence J., Cedar Rapids
 Hamilton, Benjamin C., Jefferson (L.M.)
 Hamilton, Benjamin C., Jr., Jefferson
 Hamilton, Cecil V., Garner
 Hamilton, Harriett S., Council Bluffs
 Hamilton, Henry H., Cedar Rapids
 Hamilton, William F., Marshalltown
 Hammer, Marion R., Newton (L.M.)
 Hamstreet, Wilbur F., Titonka
 Hanchett, W. McMicken, Council Bluffs
 Hancock, John C., Dubuque
 Hand, William C., Hartley
 Hands, Sidney G., Davenport
 Hankey, Daniel C., Council Bluffs
 Hanna, John T., Burlington
 Hansell, William, Ottumwa (L.M.)
 Hansell, William W., Des Moines
 Hansen, Fred A., Stanton
 Hansen, Niels M., Des Moines
 Hansen, Robert F., Forest City
 Hansen, Robert R., Marshalltown
 Hanske, Edward A., Bellevue
 Hanson, Frank H., Magnolia
 Hanson, Laurence C., Jefferson
 Hanson, Russell R., Storm Lake
 Hardin, John F., Bedford
 Hardin, Robert C., Iowa City
 Hardwig, Oswald C., Waverly
 Harken, Conreid R., Osceola
 Harkness, Gordon F., Davenport
 Harlan, Martin E., Onawa
 Harman, Dean W., Glenwood
 Harnagel, Edward J., Des Moines
 Harp, John F., Prairie City (L.M.)
 Harpel, Kate S., Boone
 Harper, Edna K. Sexsmith, Greenfield
 Harriman, Walter F., Sioux City
 Harrington, Arlan F., Cedar Rapids
 Harrington, Raymond J., Sioux City
 Harris, Clinton E., Grinnell
 Harris, Grove W., Marshalltown
 Harris, Herbert H., Battle Creek
 Harrison, Glenn E., Mason City
 Hart, William E., Odebolt
 Hartley, Byron D., Mt. Pleasant
 Hartman, Frank T., Waterloo (L.M.)
 Hartman, Howard J., Waterloo
 Hartung, Walter, Iowa City
 Hasek, Victor H., Cedar Rapids
 Hastings, John C., Elma
 Hatch, Alice H., Des Moines
 Haugen, Albert L., Ames
 Haumeder, Hans, New Hampton
 Haumeder, Maria E., New Hampton
 Havlik, Aloysius J., Tama
 Hawkins, Emmet L., Council Bluffs
 Hawley, Olin B., Corning
 Hay, William E., Avoca
 Hayek, John M., Des Moines
 Haygood, Marvin F., Des Moines
 Haymond, Harold E., Perry
 Hayne, Willard W., Iowa City
 Hazlet, Kenneth K., Iowa City
 Heady, Conda C. C., Bloomfield (L.M.)
 Heald, Clarence L., Sigourney
 Healy, Maurice A., Boone
 Healy, Maurice J., Boone
 Heathman, Frank E., Pocahontas
 Hecker, Frederick A., Ottumwa
 Hecker, John T., Cedar Rapids
 Hedgecock, Lewis E., Hampton
 Heeren, Ralph H., Iowa City
 Heetland, Louis H., Sibley
 Heffernan, Chauncey E., Sioux City
 Heilman, Ernest S., Ida Grove (L.M.)
 Heles, John B., Dubuque
 Helgesen, Peter A., Lake Mills
 Heller, Theodore A., Milwaukee, Wisconsin
 Henderson, Lauren J., Cedar Falls
 Henderson, Walker B., Oelwein
 Hendrickson, Alvin H., Sioux City
 Henely, Edmund, Nora Springs
 Henkin, John H., Sioux City
 Henneger, William A., Dubuque
 Hennes, Raphael J., Oxford
 Hennessy, Felix A., Calmar
 Hennessy, J. Donald, Council Bluffs
 Hennessy, Maurice C., Council Bluffs
 Henning, Garold G., Milford
 Henry, Clyde A., Farson
 Henry, Hiram B., Des Moines
 Henry, Rex V., Hedrick
 Herman, John C., Traer
 Hermence, George E., Marshalltown
 Hermesen, Paul J., Bronson
 Herry, Peter M., Prairie City
 Herrick, Thomas G., Gilmore City
 Herrmann, Christian H., Jr., Amana
 Herron, David A., Alta
 Hersch, Thomas F., Cedar Rapids
 Hersey, Nelson L., Independence
 Hesbacher, Edwin N., Des Moines
 Hess, Howard R., Cedar Rapids
 Hess, William C., Cresco
 Hessin, A. Laurence, Iowa City
 Heusinkveld, Henry J., Jr., Clinton
 Hibbe, Henry B., Dubuque
 Hibbs, Fred V., Carroll
 Hickenlooper, Carl B., Winterset
 Hickman, Charles S., Centerville
 Hicks, Wayland K., Sioux City
 Hight, William B., Des Moines
 Hill, Christine S. E., Council Bluffs
 Hill, James C., Newton
 Hill, James W., Mt. Airy
 Hill, Julia F., Pittsburgh, Pennsylvania
 Hill, Lee F., Des Moines
 Hills, Henry M., Lamoni (L.M.)
 Hills, Robert A., Russell
 Hinchliff, James, Minburn
 Hinrichs, Robert G., Manson
 Hinshaw, Sylvester E., Newton
 Hobart, Francis W., Lake City
 Hoegen, Joseph A., Wyoming
 Hoeven, Edward B., Ottumwa
 Hoffman, Paul M., Tipton
 Hoffmann, Alfred A., Waterloo
 Hofmann, William P., Davenport
 Hofstetter, George, Clinton (L.M.)
 Hogan, Paul W., Waukon
 Hogle, William M., Keokuk
 Holbrook, Francis R., Des Moines
 Hollis, Edward L., Marengo
 Holman, Henry D., Mason City
 Holmes, Wilson W., Keokuk
 Holtey, Joseph W., Ossian
 Homan, Leo J., Riverside
 Hombach, Walter P., Council Bluffs
 Homhach, William P., Council Bluffs
 Hommel, Placido R. V., Elkader
 Honke, Edward M., Sioux City
 Hooper, Lester E., Indianola
 Hope, Frank G., Sioux City
 Hopkins, David H., Glidden
 Hornaday, William R., Des Moines
 Horton, Vincent J., Calmar
 Hosford, Horace F., Burlington
 Hospodarsky, Leonard J., Ridgeway
 Hotz, Edward J., Strawberry Point
 Houghton, Fred W., Council Bluffs
 Houghton, Henry S., Peiping, China
 Houlihan, Jay E., Mason City
 Houlihan, Francis W., Ackley
 Houlihan, Thomas J., Ida Grove (L.M.)
 Householder, Harold A., Winthrop
 Houser, Cass T., Cedar Rapids
 Houston, Bush, Nevada
 Hovde, Rieber C., Davenport
 Hovenden, John H., Laurens
 Howar, Bruce F., Jewell
 Howard, Fred H., Strawberry Point
 Howard, Lloyd G., Council Bluffs
 Howard, William H., Decorah
 Howe, James M., Hillsboro
 Howe, Lysle C., Muscatine
 Howell, Chauncey W., Grinnell
 Howell, Elias B., Ottumwa
 Howland, Charles F., Des Moines
 Hubbard, Frank A., Columbus Junction
 Hudek, Joseph W., Garnaville
 Hughes, Robert O., Ottumwa
 Hull, Henry C., Jr., Washington (L.M.)
 Huntley, Charles C., Avoca
 Huntoon, Gardner A., Des Moines
 Hurd, Charles A., Northwood
 Hurevitz, Hyman M., Davenport
 Huston, Daniel F., Burlington
 Huston, Herbert M., Ruthven
 Huston, Marshall D., Centerville
 Huston, Samuel W., Mt. Pleasant
 Hyatt, Charles N., Albia (L.M.)
 Hyatt, Charles N., Jr., Humeston
 Hyndman, Olan R., Iowa City
 Ihle, Charles W., Cleghorn
 Ihle, Charles W., Jr., Cleghorn
 Ingham, Paul G., Mapleton
 Ingraham, David R., Sewal
 Irish, Thomas J., Forest City
 Irwin, Charles E., Woodward
 Irwin, Ralph L., Iowa City
 Isenberg, Bertice A., Lohrville
 Ivins, Harry M., Cedar Rapids
 Jackson, James M., Jefferson
 Jackson, Robert L., Iowa City
 Jacoby, James A., Burlington
 Jaenicke, Kurt, Clinton
 James, Audra D., Des Moines
 James, David W., Kamrar
 James, Lora D., Fairfield
 James, Peter E., Elkhorn
 James, Roger A., Allison
 Jameson, Robert E., Davenport
 Janse, Phillip V., Algona
 Jansonius, John W., Eldora
 January, Lewis E., Iowa City
 Jardine, George A., New Virginia
 Jarvis, Fred J., Oskaloosa
 Jarvis, Harry D., Chariton
 Jay, Leon D., Waverly
 Jeans, Philip C., Iowa City
 Jeffries, Roy R., Waukon
 Jenkins, George A., Albia
 Jenkins, George D., Burlington
 Jenkinson, Ernest A., Sioux City (L.M.)
 Jenkinson, Harry R., Iowa City
 Jenks, Alonzo L., Jr., Des Moines
 Jenks, William H., Pasadena, California (L.M.)
 Jensen, Arnold L., Council Bluffs
 Jensen, Arthur E., Humboldt
 Jensen, LeRoy E., Audubon
 Jepson, William, Sioux City (L.M.)
 Jerdee, Ingebrecht C., Clermont
 Jessup, Arthur E., Diagonal
 Jessup, Parke M., Muscatine
 Jinderlee, Joseph W., Cresco
 Johann, Albert E., Des Moines
 Johnson, Aaron Q., Sioux City
 Johnson, Albert P., Sigourney (L.M.)
 Johnson, Aldis A., Council Bluffs
 Johnson, Chester H., Cherokee
 Johnson, George M., Marshalltown
 Johnson, Glenn R., Ottumwa
 Johnson, Harvey A., Atlantic
 Johnson, J. A., William, Newton
 Johnson, Jonathan, Alden
 Johnson, Melvin T., Lake Mills
 Johnson, Norman M., Clarinda
 Johnson, Robert J., Iowa Falls
 Johnson, William A., Alden
 Johnston, C. Harlan, Des Moines
 Johnston, Florence D., Cedar Rapids
 Johnston, George B., Estherville
 Johnston, Harry L., Ames
 Johnston, Helen, Des Moines
 Johnston, Howard H., Hampton
 Johnston, Kenneth L., Oskaloosa
 Johnston, Thomas H., Spencer
 Johnston, Wayne A., Dubuque
 Johnstone, Alexander A., Keokuk
 Jones, Cecil C., Des Moines
 Jones, Charles L., Gilmore City
 Jones, Clare C., Spencer
 Jones, Harry J., Cedar Rapids

- Jones, Henry D., Schleswig
 Jones, Jesse I., Manchester
 Jones, Lewis H., Wall Lake (L.M.)
 Jones, Thomas S., Wauke
 Jongewaard, Albert J., Jefferson
 Jongewaard, Jeannette, Jefferson
 Jordan, Carl F., Des Moines
 Jordan, John W., Maquoketa
 Jowett, John R., Clinton
 Joynt, Albert J., Waterloo
 Joynt, Martin J., Le Mars
 Joynt, Michael F., Marcus
 Judd, Addison L., Kanawha (L.M.)
 Junger, Emil C., Soldier
 Kaack, Harry F., Clinton
 Kabrick, Ola A., Grandview
 Kadel, Merl A., Tipton
 Kahler, Hugo V., Reinbeck
 Kahler, James E., Los Angeles, California
 Kane, Thomas E., Boone
 Kaplan, David, Sioux City
 Kas, Thomas D., Sutherland
 Kassmeyer, John C., Dubuque
 Kast, Donald H., Des Moines
 Katherman, Charles A., Sioux City
 Katz, Louis J., Swea City
 Kaufman, William A., Marshalltown
 Kaufman, Ernest L., Fort Atkinson
 Keane, John L., Dyersville
 Keech, Roy K., Cedar Rapids
 Keefe, Patrick E., Sioux City
 Keen, Burlin E., Des Moines
 Keeney, George H., Mallard
 Keith, John J., Marion
 Kelley, Edmund J., Des Moines
 Kelley, Laurence E., Des Moines
 Kellogg, Orson A., Dows
 Kelly, Dennis H., Des Moines
 Kelly, Harry D., Council Bluffs
 Kelly, Joseph L., Burlington (L.M.)
 Kenefick, John N., Algona
 Kennedy, Charles S., Logan
 Kennedy, Edward M., New Hampton
 Kennedy, Edward P., Swaledale
 Kennedy, Elizabeth S., Oelwein
 Kennedy, William C., Somers
 Kern, Lester C., Waverly
 Kerr, H. Dabney, Iowa City
 Kerr, Johnston H., Akron
 Kerr, William, Randolph
 Kerr, William H., Hamburg
 Kershner, Frank O., Clinton
 Kersten, Ernest M., Fort Dodge
 Kerwick, Joseph M., New Hampton
 Kessel, George, Cresco (L.M.)
 Kessler, John B., Cedar Rapids (L.M.)
 Kestel, John L., Waterloo
 Kettelkamp, Enoch G., Monona
 Keyser, Ralph E., Marshalltown
 Kieck, Ernest G., Cedar Rapids
 Kiesau, Frederick W., Postville
 Kiesau, Milton F., Postville
 Kiesling, Harry F., Lehigh
 Kilgore, Benjamin F., Des Moines
 Kimball, John E., West Liberty
 Kimberly, Lester W., Davenport
 King, David H., Batavia
 King, Dean H., Spencer
 King, Harold N., Hampton, Virginia
 King, Oran W., Des Moines
 King, Ross C., Clinton
 Kingsbury, Earl L., Keokuk
 Kirch, Walter A., Des Moines
 Kirkegaard, Smith C., Ringsted
 Kitson, Walter W., Atlantic
 Klein, John L., Muscatine (L.M.)
 Klein, John L., Jr., Muscatine
 Kleinberg, Henry E., Des Moines
 Kline, Samuel, Sioux City
 Kluever, Herman C., Fort Dodge
 Knight, Benjamin L., Cedar Rapids
 Knight, Edson C., Garwin
 Knight, Russell A., Rockford
 Knipe, James B., Armstrong
 Knipfer, Robert L., Jesup
 Knoll, Albert H., Dubuque
 Knopf, Eugene J., Hubbard
 Knott, Peirce D., Sioux City
 Knott, Robert C., Sioux City
 Knowles, Fred L., Fort Dodge
 Knox, James M., Cedar Rapids
 Knudsen, Hubert K., Clinton
 Kober, Augustus F., Charles City (L.M.)*
 Koch, George W., Hollywood, California (L.M.)
 Koehne, Frederick D., Audubon
 Koeneman, Eugene O., Eldora
 Kooiker, Clarence J., Fremont
 Kooliker, Herman J., Hull
 Koontz, Lyle W., Vinton
 Korfmacher, Edwin S., Grinnell
 Kornder, Louis H., Davenport
 Korn, Horace M., Iowa City
 Koser, Donald C., Cherokee
 Kottke, Elmer E., Des Moines
 Krakauer, Max, Davenport
 Krause, Charles S., Cedar Rapids
 Krejsa, Oldrich, Cedar Rapids
 Krenning, Katherine S., Davenport
 Krepelka, George E., Osage
 Kreul, Dwight G., Davenport
 Kriebbs, Frank J., Elkport (L.M.)
 Kriebbaum, Horace T., Davenport
 Kriebbaum, Walter P., Burlington
 Krigsten, Joe M., Sioux City
 Krigsten, William, Sioux City
 Kruckenberg, William G., Mt. Vernon
 Kruse, Henry W., Rockford
 Kubela, Louis F., Chelsea
 Kuhl, Augustus B., Davenport
 Kuhl, Augustus B., Jr., Davenport
 Kuhn, Leo C., Decorah
 Kuitert, John H., Glenwood
 Kulp, Raymond R., Davenport
 Kuntz, George S., Sibley
 Kyle, William S., Washington
 Labagh, Nicholas W., Mystic
 Lacey, Thomas B., Glenwood
 LaDage, Leo H., Davenport
 Ladd, Fred G., Cedar Rapids
 La Force, Edward F., Burlington (L.M.)
 Laidley, Wallace G., Ogden
 Laird, John W., Mt. Pleasant
 Lamb, Frederick H., Davenport
 Lamb, Harry H., Davenport
 Lambach, Frederick, Davenport (L.M.)
 Lambert, Avery E., (Ph.D.), Iowa City
 Lampe, Elmer L., Bellevue
 Lande, Jacob N., Sioux City
 Langan, Joseph C., Clinton*
 Langford, William R., Epworth
 Langworthy, Henry G., Dubuque
 Lannon, James W., Clear Lake
 Lapsley, Robert M., Keokuk
 Larimer, Robert N., Sioux City
 Larsen, Elmer A., Centerville
 Larsen, Harold T., Fort Dodge
 Larson, Eloise M., Iowa City
 Larson, Lester E., Decorah
 Larson, Marvin O., Hawarden
 Lashbrook, Elam E., Estherville
 Launder, Frank T., Garwin
 Launder, Lloyd H., Marshalltown
 Leahy, Paul E., Sioux City
 Lease, Nimrod J., Crawfordsville (L.M.)
 Lee, Frank W., Osage
 Lee, Gisle M., Thompson (L.M.)
 Leehey, Florance P., Oelwein
 Leehey, Paul J., Independence
 Leffert, Frank B., Centerville
 Lehman, Emery W., Des Moines
 Leighton, Isaac W., Iowa City
 Leighton, Lewis L., Fort Dodge
 Leik, Donald W., Dubuque
 Leinbach, Samuel P., Belmond
 Leinfelder, Placidus J., Iowa City
 Leir, Charles N. O., Des Moines (L.M.)
 Lekwa, Alfred H., Story City
 Lenaghan, Robert T., Clinton
 Lenzmeier, Albert J., Davenport
 Leonard, Bertram B., Jr., Anthon
 Leonard, Earl R., Lake Park
 Leonard, Frederick S., Dubuque
 Lesserman, Lester K., Rolfe
 Lessenger, Ernest J., New London
 Lessenger, William S., Mt. Pleasant (L.M.)
 Lewis, Samuel J., Columbus Junction
 Lewis, William B., Webster City
 Lichter, Theodore W., Edgewood
 Liechty, Ernest J., Kingsley
 Lierle, Dean M., Iowa City
 Liken, John A., Creston
 Limbert, Edwin M., Council Bluffs
 Limburg, J. Irwin, Jefferson
 Limburg, John I., Jr., Jefferson
 Lindsay, Vernard T., Glidden
 Link, Martha A. M., Dubuque
 Linn, Ellis G., Des Moines
 Liska, Edward J., Ute
 Lister, Kenneth E., Chariton
 Little, Luther W., Atkins
 Lloyd, John M., Washington
 Locher, Robert C., Cedar Rapids
 Lock, Arthur L., Rock Valley
 Lockhart, Harold A., Cedar Rapids
 Loek, John F., Aurora
 Loes, Anthony M., Dubuque
 Lohman, Frederick H., Waterloo
 Lohmann, Carl J., Burlington
 Lohr, Oscar C., Churdan
 Lohr, Phillips E., Churdan
 Loizeaux, Charles E., Dubuque
 Long, Draper L., Mason City
 Longworth, Wallace H., Boone
 Loosbrock, John F., Lacona
 Loose, David N., Maquoketa (L.M.)
 Lorfeld, Gerhard W., Davenport
 Losh, Clifford W., Des Moines
 Lott, Guy A., Osage
 Lott, Robert H., Carroll
 Love, Francis L., Iowa City
 Lovejoy, E. Parish, Des Moines
 Lovelady, Ralph, Sidney
 Lovell, Harold W., Katonah, New York
 Lovett, Charles E., Lineville
 Lovett, Earl D., Vinton
 Loving, Luther W., Estherville
 Lowder, William, Maquoketa
 Ludwick, Arthur L., Jr., Waterloo
 Luehrsmann, Bernard C., Dyersville
 Luehrsmann, Bernard H., Dyersville
 Luginbuhl, Christian B., Des Moines
 Luke, Edward, Coin
 Lundby, John L., Irwin*
 Lundvick, Arthur W., Gowrie
 Luse, Ralph F., Clinton
 Luthy, Karl R., Oskaloosa
 Lutton, John D., Sioux City
 Lynch, Robert J., Des Moines
 Lynn, Arthur R., Marshalltown
 Lynn, Clarence E., Dubuque
 Lytle, Carl C., Dubuque
 MacDougall, Roderick F., Cedar Rapids
 MacEwen, Ewen M., Iowa City
 Mackie, Donald G., Charles City
 Mackin, M. Charles, Clear Lake (L.M.)
 MacLeod, Hugh G., Greene
 Macrae, James G., Creston
 Madden, William D., Clinton
 Madsen, Henry V., San Haven, North Dakota
 Magarian, Sennacherib M., Des Moines
 Magee, Emery E., Waterloo
 Magoun, Charles E., Sioux City
 Mahin, Frank M., Ainsworth
 Maiden, Sydney D., Council Bluffs
 Mailliard, Robert E., Storm Lake
 Maire, Eugene J., Vail
 Malamud, William, Worcester, Massachusetts
 Maloney, Arthur P., Fonda
 Maloy, Wayland H., Shenandoah
 Manahan, Charles A., Vinton
 Mantle, William B., Albion
 Mantz, Russell L., Cedar Rapids
 Maplethorpe, Charles W., Toledo
 Marble, Edwin J., Marshalltown
 Marble, Ira A., Sheffield
 Marble, Pearl L., Liscomb
 Marble, Willard P., Marshalltown
 Marek, Joseph E., Mason City
 Maresh, George, Iowa City
 Marinos, Harry G., Iowa City
 Maris, Cornelius, Sanborn
 Maris, Gerrit, Hull
 Maris, William, Sioux Center
 Mark, Edward M., Manilla
 Marker, John I., Davenport

- Marling, Paul F., Gladbrook
 Marquis, Fred M., Waterloo
 Marquis, George S., Des Moines
 Marrs, Walford D., Tabor
 Marsh, William E., Eldora
 Marston, Charles L., Mason City
 Martin, George H., Eagle Grove
 Martin, Hobart E., Clinton
 Martin, James W., Holstein
 Martin, John F., Latimer
 Martin, Lee R., Council Bluffs
 Martin, Loran M., Fort Dodge
 Martin, Ronald F., Sioux City
 Martin, Sidney D., Carroll
 Mason, Harry P., Wilton Junction
 Mason, Stella M., Mason City
 Masson, Hervey F., Washington
 Mast, Truman M., Washington
 Matheson, John H., Des Moines
 Mathias, John P., Mediapolis (L.M.)
 Mathiasen, Henning W., Neola
 Matthews, Damon G., Milton
 Matthews, Robert J., Clarinda
 Matthey, Carl H., Davenport
 Matthey, Walter A., Davenport
 Mattison, George, Jr., Akron
 Mauer, George A., Le Mars
 Mauritz, Emory L., Des Moines
 Maxwell, Charles T., Sioux City
 Maxwell, George B., Davenport
 Maxwell, John, What Cheer
 May, George A., Des Moines
 Maynard, James H., Adair
 McAllister, James, Odebolt
 McBride, James T., Des Moines
 McBride, Robert H., Sioux City
 McBurney, George F., Belmond
 McCall, John H., Allerton
 McCarl, J. Jay, Sac City
 McCarthy, Frank D., Sioux City
 McCartney, William H., Des Moines
 McCauliff, Guy T., Webster City
 McClean, Earl D., Des Moines
 McClintock, John T., Iowa City (L.M.)
 McClure, Ernest C., Bussey (L.M.)
 McClure, Gail A., Ames
 McClurg, F. Haven, Fairfield
 McConkie, Edwin B., Cedar Rapids
 McConkie, Willis L., Carroll
 McConnaughey, James T., Mt. Pleasant
 McCoy, Harold J., Des Moines
 McCrary, Warren E., Lake City
 McCrae, Eppie S., Eddyville
 McCreedy, Murry L., Brighton
 McCreery, John W., Whittemore
 McCreight, George C., Des Moines
 McCuiston, Harry M., Sioux City
 McDaniel, John D., Marengo
 McDannell, John, Nashua
 McDonald, Donald J., Des Moines
 McDonald, James E., Mason City (L.M.)
 McDowall, Gilbert T., Gladbrook
 McDowell, William O., Grundy Center
 McDelderry, Donald, Ottumwa
 McFarland, Guy E., Ames
 McFarland, Guy E., Jr., Ames
 McFarland, Julian E., Ames
 McGilvra, Raymond I., Guthrie Center
 McGowan, James P., Harlan
 McGrane, Merle J., New Hampton
 McGrath, William J., Elkader
 McGready, Joseph H., Independence (L.M.)
 McGuire, Clarence A., Dubuque*
 McGuire, Roy A., Fairfield
 McHugh, Charles P., Sioux City
 McKean, Alexander C., Ladora
 McKee, Thomas L., Keokuk
 McKirahan, Josiah R., Wayland
 McKirdie, Matthew, Iowa City
 McKitterick, John C., Burlington
 McLaughlin, Charles W., Washington
 McMahan, George T., Wauke
 McMahan, Thomas, Lawler (L.M.)
 McManus, Joseph P., Graettinger
 McMeans, Thomas W., Davenport
 McMillan, Edwin C., Hudson
 McMillen, Arch S., Fort Dodge
 McMurray, Edward A., Newton
 McNamara, Frank P., Dubuque
 McNamee, Jesse H., Des Moines
 McNaughton, Luther D., Eagle Grove
 McPherrin, Henry I., Des Moines
 McQuillen, Charles W., Charles City
 McQuiston, J. Stuart, Cedar Rapids
 McTaggart, William B., Havelock
 McVay, Melvin J., Lake City
 Mead, Frank N., Cedar Falls (L.M.)
 Meany, John F., Rockwell
 Meentz, Diedrich J., Fort Madison
 Meffert, Clyde B., Cedar Rapids
 Meggers, Edward C., McGregor
 Mehler, Frank R., New London
 Melgaard, Bennett A., Sioux City
 Mellen, Robert G., Clinton
 Melrose, Maurice C., Independence
 Mengert, William F., Iowa City
 Mercer, Clifford D., West Union
 Meredith, Loren K., Des Moines
 Mereness, Herbert D., Dolliver
 Merkel, Arthur E., Des Moines
 Merkel, Byron M., Des Moines
 Merrick, John H., Cherokee
 Merrill, Charles H., Oskaloosa
 Merrill, Nelson, Marshalltown
 Merritt, Arthur M., Des Moines
 Mershon, Clinton E., Adel (L.M.)
 Meyer, Alfred K., Clinton
 Meyer, George R., Marshalltown (L.M.)
 Meyer, Milo G., Marshalltown
 Meyers, Frank W., Dubuque
 Meyers, Henry A., Davenport
 Meythaler, Arthur J., Earlville
 Michel, Bernard A., Dubuque (L.M.)
 Middleton, George M., Davenport
 Mikelson, Clarence J., Iowa City
 Miller, Brownlow B., Tabor
 Miller, Chester I., Iowa City
 Miller, Donald F., Williamsburg
 Miller, Enos D., Wellman
 Miller, Johannes J., Ackley
 Miller, Lawrence A., North English
 Miller, Oscar H., Estherville
 Miller, Robert E., Muscatine
 Miller, Temple M., Muscatine
 Miller, Wilbur R., Iowa City
 Miller, William B., Centerville
 Millice, Glenn S., Battle Creek
 Mills, Ernest M., LeGrand
 Mills, Frank W., Ottumwa
 Miltner, Leo J., Davenport
 Minassian, Harootune A., Des Moines
 Minassian, Thaddeus A., Des Moines
 Miner, James B., Jr., Charles City
 Miner, James B., Sr., Charles City (L.M.)
 Minkel, Roger M., Newton
 Missman, Walter F., Klemme
 Mitchell, Claire H., Indianola
 Moen, Harry P., West Union
 Moen, Stanley T., Hartley
 Moerke, Robert F., Burlington
 Moershel, Henry G., Homestead
 Moes, Matthew H., Dubuque
 Mol, Henry L., Grundy Center
 Montgomery, Earl C., Atlantic
 Montgomery, Guy E., Keota
 Moon, Barclay J., Cedar Rapids
 Mooney, Felix P., Jewell
 Moore, Daniel V., Sioux City
 Moore, Edwin A., Harlan
 Moore, Fred, Des Moines
 Moore, Gage C., Ottumwa
 Moore, Harold H., Ottumwa
 Moore, Harris C., Martelle
 Moore, Jesse C., Eldon
 Moore, Morris, Walnut
 Moore, Pauline V., Iowa City
 Moorehead, Giles C., Ida Grove (L.M.)
 Moorehead, Harold B., Underwood
 Moran, Thomas A., Melrose
 Morden, Richard P., Des Moines
 Morden, Roy R., Des Moines
 Morgan, Earl E., Sioux City
 Morgan, Fred B., Clinton
 Morgan, Harold W., Mason City
 Morgenthaler, Otis P., Templeton
 Moriarty, John F., Rock Rapids
 Moriarty, Lauren R., Villisca
 Morris, Zenella N., Stockport (L.M.)
 Morrison, Edward D., Fort Dodge
 Morrison, John R., Carroll
 Morrison, John W., Alta
 Morrison, Orry C., Carroll
 Morrison, Roland B., Carroll
 Morrison, Wesley J., Cedar Rapids
 Morse, Charles H., Eagle Grove (L.M.)
 Morton, Matthew T., Estherville
 Mosher, Martin L., Jr., West Branch
 Moth, Robert S., Council Bluffs
 Mott, William H., Farmington
 Moulton, Milo W., Bellevue
 Mueller, Emil F., Dyersville
 Mueller, James A., Fenton
 Mueller, John J., Dubuque
 Muench, Virgil O., Nichols
 Muhs, Emil O., Muscatine
 Mullmann, Arnold J., Adel
 Mulsow, Frederick W., Cedar Rapids
 Munden, Ralph E., Cedar Rapids
 Munger, Elbert E., Spencer
 Munger, Elbert E., Jr., Spencer
 Murchison, Kenneth, Sidney
 Murphy, Arlo L., Fredericksburg
 Murphy, Cornelius B., Alton
 Murphy, George C., Waterloo
 Murphy, Joseph J., Cedar Rapids
 Murray, Frederick G., Cedar Rapids
 Murray, Jonathan H., Burlington
 Murtaugh, James E., Charles City
 Myers, Edward M., Boone
 Myers, Judson W., Postville
 Myers, Kermit W., Sheldon
 Naae, Thorleif T., Graettinger
 Naples, A. Samuel, Knoxville
 Nash, Edwin A., Dike
 Nauman, Ernest C., Waterloo
 Neal, Emma J., Cedar Rapids
 Nederhiser, Morgan I., Cascade
 Needles, Roscoe M., Atlantic
 Negus, Cora W., Keswick
 Nelson, Arnold L., Des Moines
 Nelson, Carrol C., Red Oak
 Nelson, Caryl L., Waterloo
 Nelson, Fred L., Ottumwa
 Nelson, Frederick L., Jr., Ottumwa
 Nelson, Harry E., Dayton
 Nelson, Ira D., Toledo
 Nelson, Leo C., Jefferson
 Nelson, Paul O., Emmetsburg
 Nelson, Robert J., Clinton
 Neme, Joseph J., Cedar Rapids
 Nesler, Alfred B., Dubuque
 Netolicky, Joseph Y., Solon
 Netolicky, Robert Y., Cedar Rapids
 Netolicky, Wesley J., Cedar Rapids
 Neu, Harold N., Sac City
 Neufeld, Frank, Davenport
 Neuzil, William J., Cedar Rapids
 Newell, William C., Ottumwa
 Newland, Don H., Belle Plaine
 Newland, Elmer R., Drakesville
 Newlove, Frank E., Platteville, Wisconsin
 Newman, Cloyce A., Bode
 Newton, Dennis L., Fort Madison
 Niblock, George F., Derby
 Nicholson, Clyde G., Spirit Lake
 Nicoll, Charles A., Panora
 Nicoll, David T., Mitchellville
 Nielsen, Rudolph F., Cedar Falls
 Nielson, Arthur L., Harlan
 Niemann, Theodore V., Brooklyn
 Nierling, Paul A., Cresco
 Noble, Earl H., Clemons
 Noble, Frederick W., Fort Madison
 Noble, Harold F., Fort Madison
 Noble, Lloyd E., Rhodes
 Noble, Nelle S., Des Moines
 Noble, Rusl P., Cherokee
 Noe, Carl A., Cedar Rapids
 Noe, Charles F., Amana (L.M.)
 Nomland, Ruben, Iowa City
 Noonan, James J., Marshalltown
 Nord, Donald H., Cambridge
 North, Frank R., Winfield
 Norton, Alva C., Rockwell City (L.M.)
 Noun, Louis J., Des Moines
 Noun, Maurice H., Des Moines
 Nourse, Leslie M., Des Moines
 Null, Frederick F., Hawarden

- Nyquist, David M., Eldora
 Nysewander, Christian, Des Moines (L.M.)
 Ober, Frank G., Burlington
 Obermann, Charles F., Cherokee
 O'Brien, Cecil S., Iowa City
 O'Brien, Stephen A., Mason City
 O'Connor, Edwin C., Alta Vista
 Odell, Isaac H., Des Moines
 O'Donoghue, Arch F., Sioux City
 O'Donoghue, James H., Storm Lake
 Oelrich, Carl D., Sioux Center
 Oggel, Herman D., Maurice
 O'Keefe, John E., Waterloo (L.M.)
 O'Keefe, Paul T., Waterloo
 Oldag, George C., Paullina
 O'Leary, Francis B., George
 Olsen, Martin I., Des Moines
 Olson, Evelyn M., Winterset
 Olson, Paul F., Dubuque
 Olson, Russell L., Northwood
 Olson, William E., Des Moines
 O'Neal, Harold E., Tipton
 Osborn, Clarence R., Dexter
 Osincup, Paul W., Sioux City
 Osnes, Elias N., Readlyn
 Osten, Burdette H., Northwood
 O'Toole, Laurence C., Le Mars
 O'Toole, Thomas J., Eagle Grove
 Ott, Martin D., Davenport
 Otto, Paul, Fort Dodge
 Overton, Lewis M., Des Moines
 Owen, William E., Cedar Rapids (L.M.)
 Owen, William R., Osage
 Pace, Arthur A., Toledo (L.M.)
 Padgham, James B., Ocheyedan
 Padgham, John T., Grinnell
 Page, Addison C., Des Moines (L.M.)
 Pagelson, Otto H., Iowa Falls
 Pahlas, Henry M., Dubuque
 Paige, Ralph T., La Porte City
 Painter, Jesse C., Dubuque
 Palmer, Carson W., Guttenberg
 Paragas, Modesto R., Creston
 Parish, John R., Grinnell
 Parish, Ora F., Grinnell (L.M.)
 Park, Elmer R., Sioux City
 Parker, Bernard B., Centerville
 Parker, Edward S., Ida Grove (L.M.)
 Parker, George F., Iowa City
 Parker, James D., Fayette
 Parker, Robert L., Des Moines
 Parker, William W., Floris
 Parry, Roy E., Scranton
 Parsons, Harry C., Grinnell
 Parsons, Irving U., Malvern (L.M.)
 Parsons, John C., Des Moines
 Parsons, Percival L., Traer
 Paschal, George A., Williams
 Pascoe, Paul L., Carroll
 Patterson, Alpheus W., Fonda
 Patterson, John N., Burlington (L.M.)
 Patterson, Roy A., Webster City
 Paul, John D., Anamosa
 Paul, William D., Iowa City
 Paulsen, Herbert B., Harris
 Paulus, Edward W., Iowa City
 Payne, Rosewell H., Exira
 Pearson, George J., Burlington
 Pearson, William W., Des Moines
 Peart, John C., Davenport
 Pease, Herbert, Monticello
 Peasley, Harold R., Des Moines
 Peck, John H., Oakdale
 Peck, Raymond E., Davenport
 Peck, Levin H., Lake City
 Peisen, Conan J., Des Moines
 Pence, James W., Columbus Junction
 Perkins, Franklyn C., Hedrick
 Perkins, Rolla W., Sioux City
 Perley, Arthur E., Waterloo
 Pershing, Frank O., Keota
 Peschau, Waldo E., Cedar Rapids
 Peters, Fletcher E., Defiance
 Petersen, Emil C., Atlantic
 Petersen, Mildard T., Atlantic
 Petersen, Vernon W., Iowa City
 Peterson, August J., Forest City
 Peterson, Evan A., Burlington
 Peterson, Frank R., Iowa City
 Peterson, Ray W., Clear Lake
 Petrovitsky, John C., Cedar Rapids
 Petty, Wallace S., Sioux City
 Pfaff, Richard O., St. Louis, Missouri
 Pfannebecker, William, Sigourney (L.M.)
 Pfeiffer, Ernst, Hartley
 Pfeiffer, Harry E., Cedar Rapids
 Pfohl, Anthony C., Dubuque
 Phillips, Albin B., Clear Lake (L.M.)
 Phillips, Allan B., Des Moines
 Phillips, Clarence P., Muscatine
 Phillips, Isaac H., Missouri Valley
 Phillips, Jesse H., Montezuma (L.M.)
 Phillips, Norman W., Clear Lake (L.M.)
 Phillips, Walter B., Montezuma
 Pickard, John C., Dubuque
 Piekenbrock, Frank J., Dubuque
 Piercy, Kenneth C., Maxwell
 Pierson, Lawrence E., Sioux City
 Plankers, Arthur G., Dubuque
 Plass, Everett D., Iowa City
 Plimpton, Robert P., Denison
 Plummer, George A., Cresco
 Poepsel, Frank L., West Point
 Pollock, Roscoe, Douds-Leando
 Pope, John M., Cherokee
 Pokorny, Charles, LaCrosse, Kansas
 Porstmann, Louis J., Davenport
 Porter, Charles E., Redfield
 Porter, Clarence M., Woodward
 Porter, Robert J., Des Moines
 Porter, Samuel D., Grinnell
 Posner, Edward R., Des Moines (L.M.)
 Powell, Burke, Albion (L.M.)
 Powell, Lester D., Des Moines
 Powell, Robert A., Farragut
 Powell, Velura E., Red Oak
 Powers, Francis E., Boone
 Powers, Henry R., Emmetsburg
 Powers, Ivan R., Waterloo
 Powers, Joseph C., Hampton
 Preece, Wade O., Waterloo
 Prentice, George L., Troy
 Prentiss, Robert J., Iowa City
 Presnell, J. William, Scranton
 Presnell, William H., Charlotte
 Prettyman, Oscar R., Manson
 Prewitt, Leland H., Ottumwa
 Price, Alfred S., Des Moines
 Priessman, Frank A., Keokuk
 Priestley, Joseph B., Des Moines
 Pringle, Jesse A., Bagley (L.M.)
 Proctor, Rothwell D., Cedar Rapids
 Prouty, James V., Cedar Rapids
 Pumphrey, Loira C., Keokuk
 Purcell, Bert E., Iowa Falls
 Purdy, William O., Des Moines
 Putnam, Chester L., Manchester
 Quinn, Francis P., Dubuque
 Ralston, Furman P., Knoxville
 Rambo, Cyrus C., Creston
 Rambo, David T., Ottumwa
 Rambo, Eli F., Webster City
 Randall, John H., Iowa City
 Randall, William L., Hampton
 Rankin, Isom A., Iowa City
 Rankin, John R., Keokuk
 Rankin, William, Keokuk
 Ransom, Harry E., Des Moines
 Rarick, Ivan H., Sioux City
 Rasmussen, Carl C., Sully
 Rater, David L., Ottumwa
 Rathe, Herbert W., Waverly
 Ravitts, Joseph L., Montezuma
 Raw, Elmer J., Pierson
 Rawson, Elwin G., Anamosa
 Redmond, James J., Cedar Rapids
 Redmond, Thomas M., Monticello
 Reed, Andrew I., Estherville
 Reed, Charles S., Agency
 Reed, Guy P., Davis City (L.M.)
 Reed, Lloyd T., Gravity
 Reed, Paul A., Iowa City
 Reed, Purl E., Council Bluffs
 Reed, Roe B., Clearfield
 Reeder, James E., Sioux City
 Reeder, James E., Jr., Sioux City
 Reiley, William S., Red Oak
 Reimers, Robert S., Fort Madison
 Reinicke, Edward L., Dubuque (L.M.)
 Reinsch, Frank, Ashton
 Rendleman, William H., Davenport
 Reuber, Roy N., Mason City
 Reuling, Frank H., Waterloo
 Reynolds, Albert C., Mingo
 Reynolds, Earl O., Greenfield
 Rhomberg, Edward B., Guttenberg
 Rice, Floyd W., Des Moines
 Richards, Dickinson C., Independence
 Richards, Frank O., Winterset
 Richardson, Leon F., Collins
 Richmond, Arthur C., Fort Madison
 Richmond, Frank R., Fort Madison
 Richmond, Paul C., New Hampton
 Richter, Harold J., Albion
 Ridenour, Joseph E., Waterloo
 Riegelman, Ralph H., Des Moines
 Rienets, John H., Cedar Rapids
 Riggert, Leonard O., Clinton
 Riggie, Frank P., Lamont
 Riley, John, Exira (L.M.)
 Rimel, George W., Bedford
 Ringena, Engelke J., Brooklyn
 Rinker, George E., Oto
 Risk, Howard, Oelwein
 Ristine, Leonard P., Mt. Pleasant
 Ritter, John F., Maquoketa
 Robb, James B., Chariton
 Robbins, Guy F., Starkweather, North Dak.
 Roberts, Charles R., Dysart
 Roberts, Francis L., Spirit Lake
 Roberts, Francis M., Knoxville
 Robertson, Andrew A., Council Bluffs
 Robertson, Treadwell A., West Liberty
 Robinson, Robert E., Waverly
 Robinson, Van C., Des Moines
 Rock, John E., Davenport
 Rodawig, Donald F., Spirit Lake
 Rodemeyer, Frederick H., Sheffield
 Roder, Carl F., Dumont
 Rodgers, Lewis A., Oskaloosa
 Roe, Cullen B., Afton
 Rogers, Claude B., Earlville
 Rogers, Marion W., Leon
 Rohlf, Edward L., Jr., Waterloo
 Rohlf, William A., Waverly (L.M.)
 Rohner, Frank J., Iowa City
 Rohwer, Roland T., Sioux City
 Rolfs, Floyd O., Parkersburg
 Romine, John H., Stanhope
 Rominger, Clark R., Cresco
 Rominger, Clark W., Waukon
 Roost, Frederick H., Sioux City
 Rose, Alvin A., Story City
 Rose, Joseph E., Grundy Center
 Rosebrook, Lee E., Ames
 Rosendorff, Charlotte, LeClaire
 Rotkow, Maurice J., Des Moines
 Rowan, Charles J., South Laguna, Calif.
 Rowat, Harry L., Des Moines
 Rowe, Frank N., Denison
 Rowley, William G., Sioux City
 Royal, Lester A., West Liberty
 Royal, Malcolm A., Des Moines
 Ruilmann, Cyril J., Iowa City
 Ruml, Wentzle, Cedar Rapids
 Runyon, John H., Seymour
 Rusk, Lester D., Sioux City
 Russ, Jesse E., Rake
 Russell, Charles R., Keosauqua
 Russell, Edmund D., Fort Dodge
 Russell, Elwood P., Burlington
 Russell, John, Des Moines
 Russell, Ralph E., Waterloo
 Rust, Emery A., Webb
 Ruth, Verl A., Des Moines
 Ryan, George C., Maquoketa
 Ryan, Granville N., Des Moines (L.M.)
 Ryan, John C., Des Moines
 Ryan, Martin J., Sioux City
 Sage, Erwin C., Burlington
 Sabs, Adolph L., Iowa City
 St. Onge, Joseph A., Sioux City
 Salisbury, Frederick S., Knoxville
 Sampson, Carl E., Creston
 Sampson, Frank E., Creston (L.M.)
 Sams, Joseph H., Clarion (L.M.)
 Samuelson, Carl A., Sheldon
 Samuelson, Chester L., Paullina

- Sanders, George E., Des Moines
 Sanders, Matthew G., Fort Dodge
 Sarff, Floyd G., Logan
 Sawyer, Grace M., Woodward
 Sawyer, Prince E., Sioux City
 Saylor, Harley L., Des Moines (L.M.)
 Sayre, Ivan K., St. Charles
 Scales, Emmet T., Des Moines
 Scanlan, George C., De Witt
 Scanlan, Maurice, De Witt
 Scanlon, George H., Iowa City
 Scannell, Raymond C., Carroll
 Schaefer, Paul H., Burlington
 Schaeferle, Lawrence G., Gladbrook
 Schanche, Arthur N., Ames
 Scharle, Theodore, Dubuque
 Scheele, Matthias H., Dubuque
 Schenk, Erwin, Des Moines
 Schermerhorn, Grace C., Clinton
 Schilling, Nicholas, New Hampton
 Schmidt, Bernhard H., Davenport (L.M.)
 Schmitz, Henry C., Des Moines
 Schug, George E., Dows
 Schoon, Harold W., Sibley
 Schroeder, Adrian J., Marshalltown
 Schroeder, Leslie V., Walcott
 Schroeder, Mellgren C., Pella
 Schrup, Joseph H., Dubuque (L.M.)
 Schultz, Albert A., Fort Dodge
 Schultz, Ivan T., Humboldt
 Schultz, Nelle E. T., Humboldt
 Schwartz, John W., Sioux City
 Scott, Homer W., Fort Dodge
 Scott, Philip A., Spirit Lake
 Scott, Sophie H., Des Moines (L.M.)
 Scott, Walter E., Adel (L.M.)
 Seabloom, John L., Red Oak
 Seaman, Charles L., Mt. Ayr
 Sebern, Richard C., Fort Dodge
 Secoy, Frank L., Sioux City
 Sedlacek, Leo B., Cedar Rapids
 Seibert, Cecil W., Waterloo
 Seidler, William A., Jamaica (L.M.)
 Seiler, Raymond A., Blairtown
 Sellards, Joseph W., Clarinda
 Sells, Benjamin B., Independence
 Sells, Frank W., Osceola
 Selman, Ralph J., Ottumwa
 Selo, Rudolph A., Hazleton
 Senska, Frank R., Brandon
 Senty, Elmer G., Davenport
 Severson, George J., Slater
 Shafer, Lee E., Davenport
 Shane, Robert S., Pilot Mound
 Shannon, Edwin R., Waterloo
 Sharon, James P., Des Moines
 Sharpe, Donald C., Dubuque
 Shaw, Albert E., Des Moines
 Shaw, David F., Britt
 Shaw, Ernest E., Indianola
 Shaw, Mathew M., Madrid
 Shaw, Robert E., Clarksville
 Shellito, Amos G., Independence (L.M.)
 Shelton, Charles D., Bloomfield
 Sherman, Ellen A., McGregor (L.M.)
 Sherman, Elmer E., Keosauqua
 Sherman, Richard C., Farley
 Shirley, Hale F., San Francisco, California
 Shoemaker, Rosemary, Los Angeles, Calif.
 Shonka, Thomas E., Malvern
 Shope, Charles D., Terril
 Shorey, Joseph R., Davenport
 Shrader, John C., Fort Dodge
 Shulkin, Samuel H., Sioux City
 Shumate, C. Frank, Miles
 Sibley, Edward H., Sioux City
 Sibley, Samuel E., Sioux City
 Sievers, Claudius L., Denison
 Sigworth, Fred B., Anamosa
 Simeral, Fred E., Brooklyn
 Simmons, Ralph R., Des Moines
 Simon, Werner, Cherokee
 Singer, Siegmund F., New Hampton
 Sinn, Irvin J., Williamsburg
 Sinning, Augustus, Iowa City
 Sinning, John E., Melbourne
 Skallerup, Walter M., Walker
 Skelley, William F., Davenport
 Slavin, Charles T., Moravia
 Smazal, Stanley F., Davenport
 Smead, Leslie L., Newton
 Smiley, Ralph E., Mason City
 Smith, Anthony P., Moline
 Smith, Arthur F., Manning
 Smith, Cecil R., Onslow
 Smith, Channing G., Granger
 Smith, Edgar F., Storm Lake
 Smith, Elmer M., State Center
 Smith, Eugene E., Waterloo
 Smith, Ferdinand J. E., Milford (L.M.)
 Smith, Frank S., Nevada (L.M.)
 Smith, Fred M., Iowa City
 Smith, Harold F., Iowa City
 Smith, Harry P., Iowa City
 Smith, Herman J., Des Moines
 Smith, Homer A., Correctionville
 Smith, Howard W., Woodward
 Smith, Jason N., Iowa City
 Smith, Lawrence D., Des Moines
 Smith, Rex L., Waterloo
 Smith, Robert A., Albia
 Smith, Robert T., Granger
 Smith, Roscoe D., Clarinda
 Smith, Sidney D., Waterloo
 Smith, Thomas T., Shelby
 Smittle, Jacob M., Waucoma
 Smouse, William O., Des Moines (L.M.)
 Smrha, James A., Cedar Rapids
 Smythe, Arnold M., Des Moines
 Snitkay, Carl J., Belle Plaine
 Snodgrass, Ralph W., Des Moines
 Snyder, Dean C., DeWitt
 Snyder, Glen E., Grimes
 Snyder, John A., Roland
 Snyder, Raleigh R., Des Moines
 Soe, Peder, Kimballton
 Sohm, Herbert A., Des Moines
 Sokol, John M., Spencer
 Sollenbarger, George H., Corydon
 Solis, Delmar B., Chariton
 Somers, Pearl E., Grinnell (L.M.)
 Sones, Clement A., Des Moines
 Sorensen, Alfred, Harlan
 Sorensen, Elmer M., Red Oak
 Sorensen, Regnar M., Des Moines
 Sorenson, Aral C., Davenport
 Sorenson, Kermit R., Sabula
 Soucek, Adolph, Cherokee
 Southwick, William W., Marshalltown
 Spain, Robert T., Conrad
 Sparks, Francis R., Waverly (L.M.)
 Spaulding, Homer L., Ankeny
 Spear, William M., Oakdale
 Spellman, Martin T., Cedar Rapids
 Sperow, Wendell B., Nevada
 Sperow, William E., Carlisle
 Spielhagen, Guenther F., Iowa City
 Spilman, Harold A., Ottumwa
 Spilman, Smith A., Ottumwa (L.M.)
 Spinharney, Lester J., Cherokee
 Springer, Floyd A., Des Moines
 Sproul, William M., Des Moines
 Stabo, Trond N., Decorah (L.M.)
 Stafford, James F., Lovilia
 Stageman, John F., Council Bluffs
 Staggs, William A., Iowa City
 Stalford, John H., Sac City (L.M.)
 Stam, Nicholas C., Mason City
 Standefer, Joe M., Tama
 Stansbury, John E., Cedar Rapids
 Stark, Callistus H., Cedar Rapids
 Starr, Charles F., Mason City
 Starry, Allen C., Sioux City
 Stauch, Martin O., Whiting
 Staudt, Alfred J., Waterloo
 Stearns, A. Bryce, Des Moines
 Stech, Joseph L., Council Bluffs
 Steele, George H., Belmond
 Steelsmith, Frank R., Des Moines
 Steenrod, Emerson J., Iowa Falls
 Steffens, Lincoln F., Dubuque
 Steffey, Fred L., Keokuk
 Stegman, Jacob J., Marshalltown
 Steindler, Arthur, Iowa City
 Stephen, Paul, Manchester
 Stephen, Raymond J., Cedar Rapids
 Stepp, James K., Manchester
 Sterling, Allen F., Norway
 Sternagel, Fred, West Des Moines
 Sternberg, Walter A., Mt. Pleasant (L.M.)
 Sternhill, Irving, Mason City
 Sternhill, Isaac, Council Bluffs
 Stevens, Franklin A., Belmond (L.M.)
 Stevens, Harry L., Ottumwa
 Stevenson, Eber F., Waterloo (L.M.)
 Stevenson, William W., Rockwell City
 Stewart, Alexander P., Inwood
 Stewart, Robert A., Independence
 Stewart, William L., Mediapolis
 Stinson, Alice C., Estherville
 Stoakes, Charles S., Lime Springs
 Stober, Raymond W., Charles City
 Stodden, Frank J., Sioux City
 Stocks, William A., Davenport
 Stolley, Jordan G., Moline
 Stone, James G., Bloomfield
 Stone, Roy D., Sully
 Strawn, John T., Des Moines
 Stribley, Harry A., Dubuque
 Strohbehn, Edward F., Davenport
 Strosnider, Homer O., Keokuk
 Stroy, Herbert E., Osceola
 Struble, Gilbert C., Ottumwa
 Struck, Kuno H., Davenport
 Stuart, Percy E., Nashua
 Stuckart, Theodore, West Des Moines
 Studebaker, John F., Fort Dodge
 Studebaker, Leland F., Fort Dodge
 Stumme, Ernest H., Denver
 Stutsman, Eli E., Washington
 Suchomel, Thomas F., Cedar Rapids
 Sugg, Herbert R., Clinton
 Sulek, Arthur E., Cedar Rapids
 Sullivan, Lawrence F., Donahue
 Sult, William F., Gilman
 Sunderbruch, John H., Davenport
 Swab, Charles C., Cedar Rapids
 Swallum, James A., Storm Lake
 Swallum, Troy W., Spencer
 Swanson, John E., Sioux City
 Swanson, Leslie W., Iowa City
 Swearingen, Guy H., Sac City
 Swift, Charles H., Jr., Marcus
 Swift, Frederick J., Maquoketa
 Swinney, Roy G., Richland
 Sybenga, Jacob J., Pella
 Synhorst, John B., Des Moines
 Sywassink, George A., Muscatine
 Tait, John H., Des Moines
 Talbott, Eugene F., Grinnell (L.M.)
 Talley, Louis F., Marshalltown
 Tamsiea, Francis X., Missouri Valley
 Tamsiea, John L., Missouri Valley
 Tandy, Roy W., Morning Sun
 Taylor, Charles L., Pomeroy
 Taylor, Edward D., Davenport (L.M.)
 Taylor, Ingram C., Fairfield
 Taylor, John L., Montezuma*
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DEFICIENCY STATES AND THEIR TREATMENT*

ALBERT M. SNELL, M.D.,

Division of Medicine,
The Mayo Clinic, Rochester, Minnesota

The maintenance of health in the human organism and, in fact, the continuation of life itself depend on a continuous supply of certain substances other than fuel which the body cannot manufacture for itself. The lack of one or more of these substances in the diet or the development of any condition which interferes with their normal absorption or utilization produces certain characteristic symptoms which are more or less specific for the missing substance in question. The growth of knowledge in this field of medicine is one of the great scientific accomplishments of our time.

I shall limit this paper to the deficiency diseases which are commonly seen in the north central states. Three kinds of deficiency states are found: those which are primary and due to deficiencies in the diet; those which are secondary to disease of the gastro-intestinal tract; and those which develop during various emergencies in the postoperative course, during pregnancy and during acute infections.

Primary deficiency states occur in four types of persons: the poor of industrial populations; persons on special diets for dyspepsia and other diseases; the lonely, the old, the poor, the friendless, and those who have no interest in life; all are familiar with the old lady who lives on toast and tea, and very little else; and the psychoneurotic and the eccentric group.

Why do not more persons have symptoms of deficiency disease? I think really that the normal adult is extremely resistant to a bad diet. Lind, the discoverer of scurvy, said in 1753: "All rules

and precepts of diet are to be understood only as relative to the constitution or state of the body." There is a great deal of wisdom in that statement. In respect to scurvy, a great many persons have an extraordinary resistance to this disease. When Lord Anson circumnavigated the globe, he took a crew of 950 men. Of these, he lost all but 335, chiefly from scurvy, during the long voyage. Why did not these 335 get scurvy? This question cannot easily be answered in the light of present knowledge.

Deficiency diseases develop more readily among people who are addicted to alcohol, than among normal individuals, and among those who suffer from hyperthyroidism. The explanation probably lies in the disproportion between the intake of vitamins and the number of calories in the diet. It is also true that the hepatic damage which may be present in alcoholism and hyperthyroidism may interfere with the absorption and utilization of the vitamins. The disproportion of caloric intake and the amount of vitamin received, however, is most notable with respect to the B complex.

For every patient with a deficiency disease caused by a deficient intake of food, ten come to the clinic with symptoms of deficiency resulting from some primary gastro-intestinal disease. It is not difficult to see why this should be so. It has been said many times that the normal American diet, even in the high income groups, is not overly supplied with vitamins. Stiebling, whose figures have often been quoted, has shown that most persons in the moderate or low income groups receive only a fair minimal supply of Vitamin A. Her figures also indicate that most diets are deficient in Vitamin C. There are, of course, two sections of the country which are exempt from this general statement, Florida and the West Coast, where oranges are plentiful. Naturally, further restrictions in diet induced by the disease process bring the affected individual into the danger zone of vitamin deficiency.

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In respect to Vitamin B₁, the situation is probably even worse, since patent milling methods of preparing flour have reduced the amount of thiamin in flour to about one-tenth of its former level. As a result of this fact, Cowgill has pointed out that the present diets are poorer in respect to this vitamin than those which were served under the London poor laws of 1839. Therefore, a fairly large percentage of our population is on a diet which is dangerously close to the borderline for Vitamin B₁. When a gastro-intestinal disease is introduced into the picture, symptoms of deficiency easily develop because of anorexia, nausea and vomiting, diarrhea and distaste for food. Loss of essential secretions, such as bile and pancreatic juice, may interfere with the normal absorption and utilization of food-stuffs, and increase the opportunity for the development of deficiency syndromes.

Loss of absorptive surface is also an important consideration. When pylorospasm or pyloric obstruction develops, relatively little material gets into the duodenum and jejunum. When an intestinal fistula is formed, the intestinal contents may be discharged through this fistula. Surgical short-circuiting, and disease itself, may greatly interfere with the normal utilization of materials which are ingested in the diet by reducing the absorptive surface of the small bowel. A review of some of the common diseases of the gastro-intestinal canal indicates that secondary deficiency states are not uncommon for these and other reasons.

Many physicians are familiar with the so-called hysterical dysphagia or the Plummer-Vinson syndrome. Secondary anemia, splenomegaly and erosion of the corners of the mouth develop. This is associated with great loss of weight. Both the changes in the corners of the mouth and the secondary anemia are clearly symptoms of deficiency. Patients with cardiospasm also frequently have pellagra and pellagra-like lesions of the skin.

In the cases of peptic ulcer of an uncomplicated type, deficiency symptoms are relatively rare. Most of these patients are on somewhat better diets than might be expected. Various dietitians have computed the basic elements and have found that the diets contain practically everything needed. Some patients have been taught, or come to the conclusion themselves, that orange juice injures their ulcer; therefore, many are on the borderline of deficiency in respect to Vitamin C.

When an ulcer produces pyloric stenosis, deficiency states multiply thick and fast. Pellagra is seen not infrequently and most recently prothrombin deficiency due to malabsorption of Vitamin K has been found. This is a fairly common

development and one which may not be recognized unless the possibility is kept in mind.

In the presence of poorly functioning gastro-enteric stomas, deficiency states often develop, beriberi and pellagra having been seen in these cases, and in some, well developed cheilosis.

When a gastrocolic fistula has formed because of the penetration of the gastrojejunal ulcer into the colon, a host of symptoms of deficiency may develop. At the clinic we have seen night blindness, nutritional edema and prothrombin deficiency in one and the same patient. In sprue, which is a disease characterized by loss of the absorptive function of the small intestine, all of the symptoms of deficiency which occur in gastrocolic fistula, plus osteoporosis and tetany may develop.

Ulcerative colitis is also a common cause of deficiency states. Thomas Mackie, at the Roosevelt Hospital in New York, has stated that 63 per cent of his patients with ulcerative colitis have vitamin deficiencies of one type or another. I think that figure is relatively high, but at the clinic we have no trouble in finding deficiency states, including pellagra and hypoprothrombinemia, in our cases of chronic ulcerative colitis. Many physicians are now treating this condition with very large doses of vitamin concentrates and reporting surprisingly good results.

In hepatic disease, a deficiency of one or the other of the essential ingredients of the diet often occurs. The reason for this, of course, is easily seen. The liver is the commissariat of the body and one of the great storehouses for vitamins. The liver itself is known to contain Vitamins A and D, certain portions of the Vitamin B complex, and Vitamin C. In addition, it is the organ in which prothrombin is made through the activity of Vitamin K. In primary hepatic disease, multiple states of vitamin deficiency are not uncommon. In secondary hepatic disease caused by obstructive jaundice, the exclusion of bile from the bowel interferes with the absorption of fat-soluble materials, so that osteoporosis and Vitamin K deficiency are frequently seen. Calcium deficiencies are occasionally noted in cases of obstructive jaundice of long standing. When bile is excluded from the bowel, no fat is absorbed, and without the absorption of fat little calcium is taken up.

I might summarize what I have to say about the patients with gastro-intestinal disease by pointing out that many of our common gastro-intestinal ailments have as complicating features deficiency states of one type or another, and that multiple deficiencies are not uncommon. Most deficiency symptoms occurring under these cir-

cumstances pass unrecognized and untreated. Treatment of the deficiency state is an essential part of any therapeutic program. This is especially true if surgical treatment is contemplated. Attention to the deficiency state which accompanies gastrocolic fistula has already reduced the mortality rate from surgical procedures for the relief of this condition.

It does not follow that every patient with a gastro-intestinal disorder should be dosed indiscriminately with vitamins. If the patient does not have any absorptive defect, or anatomic obstruction, and is taking a fair amount of food, he is not in danger of vitamin deficiency. If there is any interference with continuity of the intestinal tract or if the intake of food has been small, vitamins may be used to advantage. I think it is important to recognize that large doses are required, because with difficulty in absorption greater amounts are required to pass through the intestinal barrier.

The postoperative deficiency states I shall mention only briefly. They may be considered under two headings, the acute and the chronic. The chronic postoperative deficiency states are essentially the same as those encountered in diseases of the gastro-intestinal tract.

Acute deficiency symptoms which develop in the postoperative period are of considerable interest for a variety of reasons. Many patients who are subjected to operations on the stomach and colon have previously subsisted on diets which are defective in one respect or another. When the hazards of operation and the necessary period of deprivation of food which follows the operation are added to the latent deficiency induced by diet, it is easy to see how trouble may develop. Patients who have undergone extensive operations on the gastro-intestinal tract should be watched with particular care during the postoperative course. We have been observing our patients with partial gastrectomy with a good deal of interest and find that a not inconsiderable number develop mild symptoms of deficiency of one sort or another. They are afraid to eat and often have some difficulty with a stomach which usually does not completely regain its normal motor function until some time after the operation. We have seen cheilosis, peripheral neuritis, nutritional edema and iron deficiency types of anemia in such cases.

In discussing acute postoperative deficiencies, I must depart from the plan I have followed so far in considering the disease in question, and speak of the essential nutrient substances themselves. The three which are of particular im-

portance during the postoperative course are: the Vitamin B complex, with special reference to thiamin chloride and nicotinic acid, Vitamin C and Vitamin K. The necessary temporary dietary restrictions are again of considerable importance. The storage supply of all three of the vitamins mentioned is known to be limited. Anesthesia, trauma, fever and anoxia may tend to deplete the patient's available stores. The loss of necessary secretions, especially bile, may be a factor in retarding the utilization of the vitamins. Repeated or continuous aspiration of gastro-intestinal contents, which is such a common practice in hospitals today, may cut off the source of vitamins in the intestinal tract and further deplete the patient's supply.

The vitamins involved will be considered in the order of their importance. In the first place, Vitamin C deficiency of sufficient magnitude to cause scurvy is rarely seen. Occasionally, however, free bleeding may be due to Vitamin C deficiency. Many patients in the postoperative state have low levels of Vitamin C in the blood and urine, and it has now been shown fairly well that the healing of wounds and incised surfaces depends to some extent on the concentration of ascorbic acid present in the blood.

Little thiamin and nicotinic acid are stored and available as reserves for any prolonged illness. This is a rather important consideration, because nicotinic acid and thiamin chloride are indirectly necessary to burn glucose. As is well known, it is a common practice to maintain many patients in the period immediately after operation on intravenous glucose, and to give very little other nourishment. For instance, the breakdown of hexosephosphate formed from glucose depends on the presence of two coenzymes, both of which contain nicotinic acid. The breakdown of pyruvic acid, another degradation product of glucose, is facilitated by an enzyme which contains thiamin. When glucose is given in quantities, the storage of thiamin and nicotinic acid in the body is thus depleted. It is important to remember this, because in cases in which an intake of pure glucose is maintained for long periods, peripheral neuritis develops readily, and sometimes pellagrous dermatitis and mental changes make their appearance. It has been shown experimentally that symptoms of latent pellagra can be provoked by a diet of glucose and lactose.

Postoperative Vitamin K deficiencies probably exceed all others in frequency and in danger to the patient. Perhaps this state of affairs may be more apparent than real and it may be due, of course, to the fact that we have a rather simple

way of determining Vitamin K deficiency by measuring the prothrombin clotting time of the blood. Deficiency of Vitamin K comes about for three reasons: because the source of supply is cut off, as it can easily be in the postoperative case; because the means of absorption may be disturbed by the operative procedure or by the disease in question; and, because the function of the liver which manufactures prothrombin by virtue of a supply of Vitamin K is temporarily depressed. Vitamin K deficiencies are seen in the postoperative period first, in the presence of obstructive jaundice; second, following exclusion of bile from the intestine by drainage tubes or fistulas; third, because of pyloric or intestinal obstruction and discharge from intestinal fistulas; and fourth, following continuous aspiration of intestinal contents. Intestinal short-circuiting of various types also has a depleting effect on prothrombin because of the lack of a proper absorptive surface. Infection, notably pneumonia and cholangitis, can also be shown to affect the level of prothrombin. After administration of any anesthetic in any major procedure the plasma prothrombin also decreases. At least enough is known of the means by which prothrombin deficiency is produced to make it necessary to check the prothrombin clotting time of blood frequently during the postoperative course until the patient is again taking food, and gastro-intestinal activities are restored to normal.

SUMMARY

In the north central states, primary vitamin deficiencies appear under three sets of circumstances: first, among individuals whose diet is grossly inadequate, chiefly elderly and eccentric persons; second, among the economically handicapped; and third, among those on special diets for various diseases. If alcoholism is added to this picture, the probability of deficiency diseases is greatly increased, because more nonvitamin-containing calories are added to the diet.

Vitamin deficiencies are common in association with various types of chronic disease of the gastro-intestinal tract. Relatively little attention has been paid to this fact and most of these conditions are neglected and untreated.

In the postoperative state, deficiencies of thiamin chloride, nicotinic acid, Vitamin C and Vitamin K may develop. Prompt recognition and treatment of these postoperative deficiency states are essential for the proper treatment of the patients.

THE COMMON BASIS OF PSYCHOTHERAPY AND GENERAL THERAPY

ANDREW H. WOODS, M.D., Iowa City*

Lady Macbeth murdered her king. In accomplishing this, she violated her own standards of hospitality, of loyalty and of morality. She was not of tough enough fiber to stand the resulting emotional conflict. She developed hysteria. Macbeth, weary with the family doctor's assertions that her bodily organs were in good shape, finally had this dialogue with him:

"How does your patient, Doctor?"

"Not so sick, my Lord, as she is troubled with thick coming fancies."

"Cure her of that. Canst thou not minister to a mind diseased, pluck from the memory a rooted sorrow, raze out the written troubles of the brain * * * cleanse the stuffed bosom of that perilous stuff which weighs upon the heart?"

Shakespeare challenged the medical practitioners of his day. The thinking world today challenges us: "You can heal bones and lungs, but you ignore disorders of the brain, the most important of all the organs." Business men are advancing into this field, while physicians hesitate. Heads of department stores discovered that worries and suspicions among their saleswomen cut down sales. They are installing counselors in convenient offices as personal advisors for employees. Sales managers report increase in sales as worry decreases. Military men and politicians, in their rough and ready way, work chiefly through men's emotions. An eastern surgeon recently recommended the addition of a psychiatrist to the hospital staff. His reasoning was interesting. No mention was made of the welfare of the patients; it was the loss of his own time and of the time and efficiency of his staff which had aroused him. During the previous year, he said, his department had lost in efficiency from jealousies, hurt feelings and worries about advancement more than from all somatic injuries and illnesses.

We are working in a world in which efficiency depends more upon emotional status than upon muscular strength and somatic fitness. We know that emotion is due to brain cell action. We experimentally injected thirty to fifty milligrams of cocaine into calm, good natured men; they immediately became angry, suspicious and aggressive. Alcohol or amytal changes the action of brain cells, so that the person becomes cheerful and optimistic. We are not dealing with abstractions but with the action of a material organ. Emotion is

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as truly physiologic as is heart beat or insulin secretion. The curing of deranged emotion is a job for doctors.

A young medical graduate twenty years ago said to me, "We of this generation are unfortunate, because we are entering medicine after all the great discoveries have been made." No doubt contemporaries of Hippocrates voiced the same complaint. Pasteur and Koch, against opposition of medical men, established the existence of living organisms as causes of disease. The development of bacteriology followed. It fascinated investigators. Many medical men today, preoccupied with structural pathology, biochemistry and bacteriology, feel that no other line of advance need be investigated.

Pasteur started with the simple domestic fact that boiled jam, kept clean, did not ferment. His contemporaries jeered, reminding him that their grandmothers knew about jam. Today take the following equally simple fact as a starting point: a worried banker loses flesh and strength, sleep and appetite depart, attention slacks, judgment becomes inaccurate. A business acquaintance, his wife, or possibly a clergyman, deals with him in a certain way and thereafter stability returns, the man gains weight, is again efficient.

In the experience of that banker we have a datum of more importance than Pasteur had in his experience with boiled syrup. Then we note that the autonomic nervous regulation of metabolism varies as our emotion changes from cheerfulness to sadness. That is why the banker lost flesh, strength and digestive power. The study of emotion and its relations with health is not a task for philosophy and theology. It calls for men trained in physiologic technic. Sermonizing and *a priori* reasoning have proved unproductive. Medicine cannot stand half in and half out of this field. The physician today who says to the banker, "nothing but a neurosis" is equally futile with the physician in Koch's day who jeered the "theory of bugs." If he then poisons the banker with depressing drugs, he is not merely futile; he is nocuous.

Therapeutics of disordered emotions is not the confused and unknown road that it appears to many physicians to be. The objectives, canons and criteria for developing scientific therapeutic procedures for emotional disorders are the same as those which have guided us in the field of somatic diseases. All organs are composed of protoplasmic cells. The essential biologic conditions under which cells work are the same, no matter in what organ they are located or to what extent the cell functions have become specialized. You need not

be reminded that detailed procedures in diagnosis and therapy of necessity differ according to the structure and function of the organ concerned. A physician enthusiastic in dealing with refractive errors of the eye will not for that reason insist that the diagnosis and cure of nephritis is of no importance; or, if important, that it must be dealt with through the ophthalmoscope and test lenses. Brain disorders must be diagnosed and treated in accordance with the particular activities of the brain itself.

For the treatment of joints and kidneys, the particular technics and principles adopted to attain therapeutic objectives are familiar to us. For those organs the appropriate methods are more directly applied and their effectiveness more promptly verified than is true in brain disorders. We remember, however, the more important the function, the more complicated are the diagnostic and therapeutic procedures. The pancreas is harder to understand and to deal with than is a sprained ankle. In the present stage of the development of medical science, the curing of behavior disorders and neurasthenia takes us into a region which seems mysterious. We feel embarrassed, as though called on to preach or discuss philosophy. Psychotherapy lacks those well established procedures which enable us with relative ease to deal with sprained ankles or pneumonia. The path, however, is blazed for us by indicators, which on examination we discover are the same we have habitually followed in guiding patients suffering with somatic disorders.

In all therapy the indicators during the first stage point to the objective: *prevent trouble*. If that goal was missed, start for the second: *discover*, then *remove the cause* of the trouble. Having done that, the final sign board points to the third objective: *restore the damaged function*.

Be the function concerned vision, digestion or behavior, a scientist notes how various foods, drugs, operations and environmental conditions affect that function. With his attention fixed on the objective, he selects and utilizes those factors so as to accomplish his purpose. If bitter tonics and baths will cure the neurasthenic banker, all right. If they fail and if the banker's brain will respond to a more suitable social group or to a wisely presented philosophy of life, will a true scientist say the securing of the desired effect through such a cause does not constitute scientific therapy?

A few examples of the steps by which these three objectives are to be attained in any field of therapeutics will, I believe, suggest to each of us how he in his own individual way can work out

detailed technics for the correction of deranged emotions.

PREVENTION

Improving the Stock

Preventive medicine is laboring in the fields of genetics and eugenics for the farthest-reaching, the ideal methods for freeing men from mental and bodily diseases. When we shall have complete knowledge as to the behavior of the chromatin elements of germ cells, we can expect to establish rules for the attainment of maximum resistance and immunity. Even with present limited knowledge, we do well to advise against marriage or reproduction when hemophilia, feeble-mindedness, dementia praecox or manic-depressive psychosis is known to run in either of the families concerned.

Starting with the Embryo

In our everyday work, however, we deal chiefly with persons already conceived. Their ingredients have been brought together by ancestors who neglected to consult us. After embryonic life has commenced, we cannot protect children from all the accidents of life; it is impossible to guard them from all infectious organisms. We know, however, that resistance to diseases of the body is dependent primarily upon the development of inherent powers, such as those of digestion, metabolism in general and muscular coordination. Similarly, normal development of mental faculties establishes resistance to emotional abnormalities. It is built up in children as they deal wholesomely with people and circumstances. By fostering sound functioning of all organs, including the brain, the doctor builds up general vitality, resistance to disease and he engenders emotional adaptability both to social conditions and to the individual's own internal experiences.

Immunity and Resistance

Immunizing serum does not remain perpetually in a child's blood and does not itself prevent infection. It merely arouses the body cells to defend themselves. This capacity for defense depends upon internal arrangements which existed within the cells and were ready to go into functional activity when stimulated by the products of bacteria. Suitable arrangement of blood conditions arouses immunity to diphtheria. Suitable arrangement of home conditions arouses immunity to psychoneurosis. In other fields than immunization against infectious diseases, the same principle is true. Some men can resist unfavorable conditions of life in the tropics, others cannot. These specific powers of adaptability depend upon corresponding structural and functional provisions in the body tissues. Adaptability to particular social environment depends upon the same provision.

The capacity for regulative feelings and sensibilities is due to specific arrangements within the cells* of appropriate centers in the brain. That composite of feelings which we call "disposition" or "personality" is provided for in cell structure. If we supply the environmental conditions necessary for the healthful development of brain functions, we may count with confidence upon the emergence of the normal disposition for the particular animal. The ability of an organism to adjust itself to environment depends ultimately upon the maturing in that organism in early life of inherently prepared functions wherewith to contend with those environmental elements, whether the organism is to adjust itself to invasion by bacteria, to unfavorable climatic conditions or to unwholesome social conditions. A medical man guides the development of an infant's digestive powers. By suitable procedures, taking into account the functional differences of brain and stomach, he can guide the development of its character.

Developing Self-reliance

Consider, for example, the tendency of pathologically dependent persons to develop psychoneurosis. An infant is helpless. Nature has prepared in parents the instinctive emotional reaction of pity. In distress a baby cries. The cry is a stimulus to the parents' emotional reactions, so they attend to the child's need. If a child receives unnecessary assistance and entertainment as a response to crying, it regularly thereafter will secure what it desires by peevishness rather than by direct effort. However, effort implies the use of inherently prepared function, and is the one way by which function can be developed. The result, therefore, of parents' unwise attention to a child's cries is a double misfortune to the child itself: it fails to develop the function and it becomes plaintive, dependent upon others and parasitic. Children, confident of parental affection, who are left to their own resources, make effort for themselves. They become independent, self-reliant and resourceful. Left much to themselves, they develop spontaneous enjoyments; do not depend upon others for entertainment. Such a child in its first year real-

*Look at this statement more carefully. On first hearing it, some may doubt its correctness. Here are the ova of two mammalian forms. Within these microscopic cells are structural provisions which will produce definite body forms, functional activities and predictable kinds of disposition. The first ovum will become an awkward, horned animal. The smell and taste of grass will act upon its brain cells in such a way as to produce pleasure. The smell and taste of raw meat will produce unpleasant feelings. On the side of function it will develop no great muscular power, it will be ungainly; the noise it makes will be a moo. As to disposition, it is ordained to be gentle, tractable, easily domesticated. The other ovum will develop into a tawny, broad-headed animal. The connections of its smell and taste receptors will be such that it will get pleasure from raw meat. It will be powerful and swift; its noise will be a roar. As to disposition, it will be fierce, easily irritated and incapable of domestication. The chromosomes of cows and lions do not hand down from parents to offspring merely spirit or abstractions.

izes that it can do things for itself. This is the origin of self-confidence. Independence and self-confidence immunize against psychoneurosis.

The immunizing power of body tissues starts into operation and is gradually strengthened as it is forced to contend with small, then larger assaults by bacterial toxins. Similarly, courage and hardihood in a boy start into operation and grow indefinitely under appropriate arrangements in the home environment. Later, competitive games and camping trips, trusting him to devise ways for meeting his own difficulties, letting him feel responsible for the results of his decisions, according to his stage of maturity—these make a man of him. Patience and good humor are developed in telephone operators by this fractional method. An expert tester calls the girl, starts trouble, notes the nature of her replies. She supposes it is a patron. Later he discusses with her the technic in clearing wires and keeping patrons happy. A latent resistance to irascibility its brought into activity.

The personality traits which build up resistance against criminality, social misbehavior and psychoneurosis are amenable to scientific investigation. The home conditions for producing those traits are the most important objectives of preventive medicine.

REMOVAL OF THE CAUSE

Conjunctivitis produced by a foreign body suggests, as the first therapeutic step, the removal of the foreign body. From victims of the diphtheria bacillus, we remove bacillus and toxins by injecting the appropriate serum.

In the realm of emotion, there are no causeless disorders. Doctors forget this palpable fact. For instance, a successful young mechanic stated that six months earlier he had begun to feel weak and tired, digestion failed; he could not sleep. The loss of working efficiency steadily increased, in spite of careful examination by his physician who had had the routine series of laboratory tests performed. The physician discharged this patient a month later with the sincere statement, "Nothing the matter; sound as a dollar; snap out of it—and here is a prescription to buck you up and help you to sleep." After another month his business was going to pieces; he spent most of his time in bed. Blood bromides stood at 150 milligrams per 100 cubic centimeters. The physician who referred him was a friend of mine, a man of experience and ability. He would have scorned the administration of bromides or morphine for acute conjunctivitis as a substitute for the removal of the sand. He was by nature reticent and disliked to

enter into the private concerns of his patients. A month before this mechanic's sickness commenced, his mother, a recent widow, had come to live with him. She had always dominated her own household. Within ten days after her advent, the mechanic's household was in confusion. Soon the wife was on a sit-down strike and the son's grades and behavior at school were sinking. With the help of a diplomatic social worker, arrangements were made to eliminate the mother. The patient soon was back in his old position, enjoying life and earning money.

In the conjunctival sac, a grain of sand is a hard, angular, rough, irritating, unassimilable foreign body, removable by suitable technic. In a home, a mother-in-law can be a hard, rough, angular, irritating and unassimilable foreign body, removable by suitable technic. Headaches, indigestion, jitters, sleeplessness, fatigue; after four patients in succession have chanted that dirge, we would feel neurasthenic ourselves, if we gave up effort at that point.

A woman graduate student had wept on the shoulders of the dean and college physician and was sent to us for relief (of the dean and doctor?). She emphasized her ambition, industry and love of teaching. Her intelligence level was low. Shortsighted kindness of her instructors had allowed her to get the bachelor degree. The cause of her neurasthenia was ambition unsupported by ability. She was pretty, dressed nicely and was attractive and domestic. We convinced her that abstract thought was of less value in modern society than the talents which build up a good home. It was that suggestion and a young man in the offing that removed the cause of her disorder.

The important contribution given to medicine by Sigmund Freud, through his technic of free association of ideas and interpretation of symbolism, is that it enables physicians to get at many causes of emotion derangements, even though the unfortunate experiences have long been forgotten by the patients themselves.

Meaning of Anxiety and Serenity

Two conscious states, pain and tenderness, are accepted by doctors as "practical facts." They indicate actual tissue pathology. In trigeminal neuralgia we find no actual tissue changes, but those patients themselves are practical facts: they do things that force us to abandon the nothing-wrong-snap-out-of-it futility. Physiologists are a mile ahead of us in their understanding of feelings. They see the significance, for instance, of the diffuse qualities of consciousness which we recognize as anxiety and serenity. The autonomic nervous system regulates the vegetative organs.

Afferent nerve fibers from the viscera continually act upon the cerebral central control stations which reflexly correlate circulation, endocrine and all metabolic functions. The effectiveness of the operations of the whole complex machinery registers itself for outsiders in the patient's facial expression, gestures and speech. Within his own consciousness, the signal is through specific qualities of feelings which appear minute by minute. Anxiety is a red light; something wrong; look into it. Serenity is a green light; all is well. During the persistence of fear, the autonomic system goes into emergency action; normal metabolic functions go lamely; emaciation, indigestion and fatigue set in. Even the higher cerebral functions concerned in disposition and intellect become inefficient. Can the family doctor get fear changed to serenity?

Sermonizing Ineffectual

We are tied to intellectualism; we worship the idol logic. Parents, teachers and churchmen suppose that a command or logical argument will render wholesome those springs that produce behavior. A man brought his jealous wife to us. He stated to her with salesmanlike smugness, "Haven't I given you a fine home, a good car and better clothes than most girls get? And now you don't care for me." The Chinese philosopher would remind him, "A thousand gold pieces won't buy one smile." Money cannot arouse love or discharge jealousy.

In dealing with emotional disorders which reduce the efficiency and destroy the happiness of our patients, we get nowhere by telling them they are foolish, that it's all imagination. Anxiety is always due to an adequate cause; adequate for that person. It will continue to work havoc in his life until the cause has been discovered and removed. A bullet or tumor deranges brain function. Its removal is a matter of manual skill. If the derangement is due to an idea or misconception, the procedure for discovery and removal may or may not be difficult, but it is a disorder which occurs more often, its successful removal is less devastating to brain tissue, and results are usually more gratifying to both doctor and patient.

RESTORATION OF FUNCTION

The doctor has conquered the infection that caused the endocarditis; now he is faced by a crippled heart. Life is in danger, efficiency is reduced until the circulation is assured. How can a malfunctioning organ be brought up to normal efficiency? Drugs may help in certain contingencies, but the general law is that only through effort to perform its own work can any organ improve

its coordination and increase its strength; graduated exercise for the heart, movements to restore stiff joints. Experience leads me to believe that even feeble voluntary contractions in a poliomyelitic muscle restore it more quickly than do passive movements or electrically induced contractions.

That law holds true at all levels of brain function. After a particular episode of intellectual or emotional misbehavior is brought under control, future efficiency of behavior remains to be established. It can be gained only through purposed effort of the person to meet everyday situations. A school boy who solved his problem badly may be made imitatively to copy it down when corrected; but he will continue to make mistakes in later problems. To make him a mathematician is the teacher's objective. She does this by arousing his ambition to work problems for himself, beginning at the level where his mistakes were made. What is true of intelligence is just as true regarding social behavior. After we have dealt with an outbreak of psychoneurosis, the worthwhile task then remains to build up the faults of personality which made that futile behavior possible.

It is a just criticism of psychotherapy, as it is often applied, that it aims at the complacent adjustment of the patient, but tends to increase his self-consciousness and selfishness. Worrying, jealousy and discontent at times are stopped by replacing them with worse forms of maladjustment. A bright young married woman was so harried by her mother's persistent dictation in details of the girl's personal and married life, that she sought advice because she felt life was hardly worth living. This self-centered mother, under the guise of affection, had kept her husband, two children, and now the son-in-law, in a constant state of unrest. The growing resistance of her victims in turn upset the mother to such an extent that she underwent a prolonged psychoanalysis. Her daughter stated the result of the analysis: "Mother got emotionally adjusted; she's complacent all right; but it's been worse hell to us ever since".

Psychotherapy is unsuccessful if it remedies the immediate emotional discomforts of the patient, while leaving the underlying self-indulgence and other inadequacies of personality uncorrected, as the root from which further unsatisfactory behavior will grow. The principle here involved will appear sufficiently clear through two examples. A salesman came for help because of complete amnesia for the whole of his life up to a definite day two years before we saw him. During these two years he had attained success in a new business, married and had an infant child. He was brought back into contact with the vacant period of his life. Suddenly there appeared detailed memories

of a wife, two children, and a different form of business in a distant city. The legal wife was a Xantippe. Ethical scruples had kept him from divorcing her. After dismal years, his brain had brought relief through amnesia. During the two years before we saw him he had thought of himself as happy, but had frequent vague feelings as though he was living on the brink of a chasm. With memory restored, his first plan was to keep his status and whereabouts hidden from his legitimate wife, to continue his present precarious paradise. We explained that such an experiment would fail, that his future career would be in e-cure, a nightmare of fear relieved only by periodic hysterical performances. He brought his father and his lawyer to us and worked out an equitable solution, to the satisfaction of the legal wife.

Many soldiers in France during 1917 and 1918, facing intolerable situations, gained temporary relief through amnesia, paralysis or grotesque convulsive attacks. It was usually easy to stop the immediate performances by sending the men back to America. As you know, many of them have continued for twenty-odd years in neurotic inefficiency. Others asked questions, grasped the nature of their disorder and determined to go back into the fight. Whether this was sportsmanship, foolhardiness or cold courage makes little difference. Any one of those attitudes lifts a man's personality to a plane on which he will take life as it comes. When neither the opinions of other men nor death makes a man afraid, hysteria has little chance with him.

SUMMARY

The statement that therapy for emotional disorders is of one kind with therapy for somatic organs, is not a figure of speech or a mere analogy. Whether we use immunizing serum, drugs or special diets, all therapy comes down to this: remove any condition which tends to derange a function; study the nature of the organ concerned and introduce new factors into the environment that will stir its cells to meet the deranging force by developing and using defensive powers already inherent in itself. This principle is the same whether the environment concerned is the body fluid which surrounds cell masses or the social and material environment which surrounds the organism as a whole.

A doctor's position as a scientific man, unprejudiced by his religion or politics, and having no theoretical doctrines to prove, gives him influence and respect. He can induce the families under his care to provide suitable home environment to incite forms of brain reactions which will immunize growing children from plaintiveness and emotional

instability. He is in the best position to discover the causes of "nervous breakdowns" and to remove them. He will do his patients the greatest service possible by leading them to solve their various emotional problems on a sensible and lasting basis, so that they will not slip into the protean forms of psychoneurosis.

Discussion

Dr. James A. Greene, Iowa City: The physician from time immemorial has practiced psychotherapy, either consciously or unconsciously. Patients consult the physician for one or two reasons. The most common reason is anxiety, either on the part of the patient or his family. The other reason is pain. The anxiety state is either relieved or aggravated by the physician's manner and method of handling the situation. This anxiety state is appreciated by every physician and its relief is attempted by correction of the underlying organic disease. In instances of chronic organic disease such as diabetes, heart disease, arthritis, etc., which cannot be eradicated, the physician combats the anxiety state by education of the patient about the disease and by encouragement. There are, however, a large number of patients who have functional complaints without any organic basis. Many of these are relieved after a thorough examination has revealed no organic disease and the mechanism of their symptoms are explained to them. In such cases the anxiety has its origin from a fear or uncertainty regarding the presence of serious organic disease. In other instances the anxiety or depression has arisen from their environment, social, financial or marital. In such cases the cause of the nervous response is not eradicated by a thorough examination and an explanation of the cause of the symptoms. It is necessary, therefore, for the physician to discover the cause of the nervous response and to correct it, or to teach the patient to adjust himself to it, or both, if the patient is to be improved.

These latter cases have been neglected by the profession and are the ones which Dr. Woods apparently had in mind in his excellent discussion. The family physician is in a better position to discover and to evaluate the cause of the nervous response than anyone else. He knows the patient's environment, can learn the patient's reaction to it and is best able to obtain the confidence of the patient and the patient's family. To be certain, these patients require a great deal of time which is at a premium with a busy practitioner. The urgency to minister to patients with more obvious and readily treated disease makes it difficult for the practitioner to find the necessary time to uncover the etiology in many instances. Too frequently, however, the physician regards these patients as individuals who are made of inferior protoplasm. He discourages them from coming to him with their problems or drives them away by telling them that there is nothing wrong with them and to go home and forget it. A vast majority of these patients would rather consult their physician, but

they are driven into the arms of the awaiting charlatan.

Dr. John I. Marker, Davenport: Members in attendance at this annual session have been fortunate in hearing this paper by Dr. Woods. Each of us should have the importance of psychotherapy called to his attention. As the leaders in the field of psychiatry are able to formulate and crystallize ideas so they can be more readily used by the general practitioner the entire subject of therapy will be on a firmer basis. It has been truly said that the great unexplored regions of the present day lie within the human brain. The philosopher has said that "The use of the world is that man may learn its laws." The laws of the human mind are in their early stages of exploration. Many have taken the time to sit and listen to the complaints of a nervous insomnia patient and had them tell you the next day that they slept well without medicine. I presume we will always find dissatisfactions, unpleasant environments and violated standards in a neurotic patient or an uncomfortable individual.

It is the function of the physician to find out specifically what is irritating to the patient and change the irritant substance or build up the patient's resistance to it. Psychotherapy requires the ability to listen attentively to a conversation of the patient and to direct that conversation along lines which the patient will find helpful. This takes time. The physician who hurries and makes a quick diagnosis, attempting to make the patient accept his solution of the problems, is doomed to failure. You cannot make the patient accept your ideas or ideals by force. It reminds us of Emerson's statement in his essay on "education," wherein he decries a tendency to make all conform. "You are trying to make that man another you. One's enough." Sometimes you find that the patient's standards are too high; sometimes you find the patient's ability is low. By indirection and suggestion you can lead the patient to accept many ideas.

I wish our speaker had gone further in his story of the psychiatrist who was to eliminate jealousies, hurt feelings and thwarted ambitions in the surgical staff of an eastern hospital. Psychiatric practice could be no more difficult than that assigned to the man who is thus to cure a group of doctors. Our advice in the field of genetics and eugenics is good, but on the part of those who should follow it there is often slight urge to do so. We receive the patient in whom adaptability may be poor because of violation of well-known principles of birth in their parents. In the field of eugenics the doctor can shape opinions, raise resistance and adjust the patient to the environment when he gets the proper response in the patient as he relieves troublesome symptoms. It is easier to remove the foreign body in the conjunctival sac than it is to remove the irritating mother-in-law or the unwanted child or parent from the environment. Here the physician must build up in the patient, healthy resistance to the unpleasant situation. The *sine qua non* of success in mental therapy is for the physician to remember that he is dealing with the

patient and must make changes in him. The physician who attempts to change the environment too much is headed for trouble and someone will tell him to mind his own business. Successful psychotherapy aims at developing in the individual the ability to live comfortably in the environment in which he is forced to stay. This cannot always be done. Often the patient will become more comfortable through direction of his attention and activities and the assurance of a sympathetic understanding of his troubles.

Dr. Woods has given you a masterful discussion of this subject. The specific therapy in each case will appear to you as you formulate in your own mind the problem of the patient and the knowledge you have on the subject. Such discussions as we have heard this afternoon can produce much good to patients and lasting satisfaction to us as physicians.

WEED DERMATITIS*

THOMAS L. TRUNNELL, M.D., Iowa City

Weed dermatitis is common in Iowa because it occurs chiefly among agricultural workers, and it is of economic importance because it may disable farmers during their busiest season. Its recognition is not difficult because the clinical history and objective findings are quite uniform in most cases. The dermatitis is caused by contact with the oleoresin found in all parts of the plant during the entire growing season and can be proved by a simple patch test with ether extracts of the dried plant. Members of the ragweed family are the most frequent offenders.

Although weed dermatitis was known many years ago and Schamberg¹ reported cases of it, its general recognition dates from the work of Brunsting² who reported eighteen cases, and Frank³ who called the attention of Iowa physicians to the disorder. Recently Shelmire⁴ has simplified the diagnostic procedures and suggested a simple method of oral therapy.

At the University Hospitals Dermatologic Clinic we studied all patients who we thought might have weed dermatitis, and performed patch tests upon them. We found that the clinical history and objective findings were quite uniform in most cases. Extracts of thirty-five weeds were used but positive findings were elicited only by short and giant ragweed, cocklebur and gaillardia. Subclinical reactions were obtained from sunflower and burdock. The material studied consisted of eleven proved cases of weed dermatitis. The following case illustrates the typical history and dermatologic findings.

R. A., a farmer thirty-eight years of age, en-

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tered the hospital on September 7, 1939, because of a severe generalized dermatitis which had bothered him each summer for the past fifteen years. He stated that he had most of his trouble from about the middle of July until after cold weather set in, usually late in November. Beginning in July each year he noticed a papulovesicular eruption on his wrists and ankles. This eruption slowly spread up the arms and legs to involve the popliteal and cubital areas. The itching was so intense that he would rub the areas raw. During haying the dermatitis spread to the face and neck and the eyelids became puffy. At that time the dermatitis of the extremities became much worse and scattered patches of dermatitis appeared on the body. As time went on, the skin in the affected areas became reddened, thickened and edematous; and the itching, especially at night, was intense. The dermatitis continued about the same until Thanksgiving time when gradual improvement was noticed. During the winter he had slight attacks lasting only a few days and involving only the wrists and ankles. He noticed that these attacks followed working in hay and straw about the barn. For several years the dermatitis had been so severe that he had been unable to work during haying and threshing.

Physical examination showed nothing remarkable except a dry eczematous eruption with areas of thickened skin involving the backs of the hands, the forearms and the lower half of the arms. The dorsa of both feet and legs to the level of the mid-thigh were likewise involved. The face was diffusely red and scaly with edema and thickening of the skin of the eyelids. There were scattered patches of thickened skin on the face and neck. There were also erythema and edema of the genitalia. Scattered over the trunk was a red papular eruption resembling somewhat a drug eruption. There was no evidence of irritation of the conjunctivae or nasal mucosa nor was there a history of hay fever or asthma. Local treatment to the skin was started and within a week the dermatitis had subsided enough to allow patch testing. The only reactor was short ragweed which caused a vesicular edematous patch of dermatitis within twelve hours.

One might substitute the history and findings of the above case for that of any of the other three farmers of the series, or the bridge carpenter, without any variations save the results of the patch tests. The other six cases followed the cited case fairly closely except for some interesting variations in those patients whose occupation exposed them to only sporadic contact with weeds. One patient, a trucker by occupation, noticed attacks

of dermatitis after handling hay and sheep. He was sensitive to short ragweed. Another patient who owned a feed store had attacks after working with straw, hay, etc., in the warehouse. He also was sensitive to short ragweed. A banker had attacks after working in the garden or playing golf. He was sensitive to short ragweed and gaillardia. A farm wife, the only woman of the series, had had dermatitis for seventeen summers which always began in August and continued until cold weather. It was at this time of the year that she helped with the chores and outside work. This year, however, the dermatitis continued until February. Questioning revealed that the patient had a straw tick which she handled daily. She was found to be sensitive to short ragweed. A clergyman who was fond of hunting had attacks of dermatitis of the exposed areas of skin following each hunting trip. He was the only patient found to be sensitive to only giant ragweed. Another clergyman came in contact with weeds while visiting and helping farmer members of his congregation at harvest time. This was the only time he was bothered. Patch tests were positive for short ragweed only.

Undoubtedly many cases of weed dermatitis in Iowa are unrecognized. Of the eleven cases studied only one had been diagnosed prior to admission to the hospital. This seems surprising when one considers that some of these patients had had their trouble from fifteen to twenty years, and that the average duration was nine years. The history these patients gave was quite characteristic. Most of them volunteered the information that their dermatitis was seasonal and many of them suspected that weeds were causing the trouble. Since Shelmire has devised a simple method of preparing and applying the material for patch testing, there is no reason why general practitioners cannot handle most of the cases of weed dermatitis. This is doubly true when one considers that a great majority of the positive tests are distributed among a relatively few weeds such as short ragweed, cocklebur, giant ragweed, burweed, marsh elder and gaillardia. There is no involved technic necessary to prepare the material for patch testing. The material used at the University Hospitals is prepared by placing the dried plant in a jar, covering it with ether and allowing it to stand for twenty-four hours. The ether is then poured off and allowed to evaporate. This leaves a tarry residue which contains all the ether soluble portions of the plant, including the chlorophyll and the active substance. After the tarry residue is diluted one part with ten parts ether and placed in a two dram homeopathic vial and corked, it is

ready for use. A two quart fruit jar of dried leaves will produce enough material for hundreds of patch tests and will keep for years.

Patch tests were applied by tilting the vial to moisten the cork and touching the cork to the skin of the back, abdomen or thighs. Positive tests appeared within six to forty-eight hours with a reaction consisting of localized erythema, edema and vesiculation. Those tests which showed only an irritation of the hair follicles without edema and with or without erythema were classified as subclinical reactions. It is felt that a subclinical reaction denotes a tendency of that plant to become an active sensitizer to the individual tested but that it has no part in his present dermatitis.

There were fifteen positive patch tests and four subclinical reactions distributed among the eleven cases. Of this number ten positive reactions were due to short ragweed, two to giant ragweed, two to cocklebur and one to gaillardia. Cocklebur was responsible for two subclinical reactions and sunflower and burdock caused one each. Several of the patients had acute exacerbations of their generalized dermatitis at the same time the patch test became positive. For this reason it is thought best to delay patch testing until the dermatitis has completely subsided.

As early as 1919 Schamberg advocated oral administration of plant extracts for poison ivy sensitivity. This method has recently been used by Shelmire who reports gratifying results in treatment of dermatitis due to other weeds. So far our results have been too meager to have significance. Only one case has been followed long enough to report. This patient believes that he has improved greatly. He has had fewer attacks and these attacks have been mild. Intramuscular injections of the weed extract have been tried by Brunsting and many others with rather poor results. This treatment too often results in a generalized dermatitis and for this reason should be avoided.

Material for oral medication is made by mixing one gram of the tar-like residue with 100 cubic centimeters of cottonseed oil. The weighed residue is first dissolved in a small amount of ether and added to the measured amount of cottonseed oil and thoroughly mixed. The mixture is then heated to drive off the ether. This step is necessary to get the active ingredient into solution with the oil. The patients were supplied with dropper bottles and instructed to take five drops three times a day in milk, preferably through a straw to avoid irritation of the lips.

The local therapy used in the treatment of weed dermatitis depends on the degree of acuteness of

the disorder. When the dermatitis is acute or hyperacute with vesiculation, edema and moist eczematous reaction of the skin, continuous cool wet boric acid compresses applied to the affected areas give maximum relief and rapidly reduce the edema and inflammation. If the dermatitis is dry and chronic with patches of lichenified skin, oily preparations such as calamine liniment (National Formulary) with one per cent phenol added to it may be used. Soothing protecting ointments such as zinc oxide to which has been added two per cent ichthammol (National Formulary) may be very beneficial. The skin should be cleansed with bland oils, or starch and soda baths. These are prepared by adding a half pound to a pound of prepared starch and one cup of baking soda to a tub of tepid water. Soap and other skin irritants should be avoided insofar as possible. If the dermatitis is severe, the patient should be hospitalized to avoid all contact with the offending weeds. Phenobarbital and aspirin given at regular intervals assure the patient relief and allow him to rest comfortably. Under this management the skin becomes normal in three to six weeks. If the patient is not hospitalized, convalescence may be prolonged from six weeks to several months. This is due partly to the fact that treatment is not so effective and partly because the patient often comes in contact with enough of the offending plants to cause a slight exacerbation from time to time.

SUMMARY AND CONCLUSIONS

1. Eleven cases of proved weed dermatitis were studied and the clinical history and the character and distribution of the dermatitis were found to be fairly uniform.
2. Sensitivity to weeds occurs most frequently in men who are exposed to weeds in their daily work.
3. The diagnosis can be proved beyond doubt by patch tests with ether extracts of the weeds.
4. Members of the ragweed family are the most common offenders.
5. Desensitization by oral administration of the oleoresin in oil is apparently effective.

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Discussion

Dr. Louis J. Frank, Sioux City: I have enjoyed hearing Dr. Trunnell's paper and I agree with everything he has said. My discussion will merely empha-

size by repetition in different words some of the points he has made.

There is nothing in dermatology which gives me a greater feeling of futility than caring for several of these patients with ragweed dermatitis through a season of their infirmity. Dr. Trunnell pointed out that their skins return to normal in three to six weeks with appropriate local medication, plus hospitalization. The patients we see in private practice, who can afford the rather long and recurrent hospitalization, usually prefer to visit California, where they do well and offer no special problem. On the other hand, the poor farmer, who economically has no alternative but to work, goes through several months of real misery. He could manage hospitalization and treatment for one season, as he does with his other illnesses, if it offered him a hope of cure, but the yearly recurrence, always at his busiest season, forces him to get along as best he can. He takes to bed when the acuteness of the eruption becomes intolerable. He treats it a few days, improves, returns to the fields, then to bed again, and so on into the early winter.

The tendency is for these patients to become worse with the passing years. Their histories often show that the first year the eruption is moderate, limited in extent, and disappears shortly after frost. The next year it spreads further and persists longer. Later it continues into the early winter and certain cases tend to remain broken out during the entire year with seasonal exacerbations. These patients are the ones who are benefited most by hospitalization and dermatologic treatment toward the end of the active weed season, since this abnormal persistence is often due to lack of treatment or inappropriate treatment, together with a lower threshold of irritability.

I have discontinued the intramuscular injection of the oil extract. At the time I reported on Ragweed Dermatitis in the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY, I was encouraged with this procedure. I obtained definite improvement lasting for forty-eight hours after each of two injections. This was at the end of the growing season. The following year, adequate pre-seasonal and co-seasonal treatment in variously graded doses proved of no help whatever, in this same patient. I have not used Shelmire's method of oral desensitization. Dr. Trunnell's report of encouraging results in one case treated in this manner is interesting. I intend to prepare this extract as soon as the proper weeds are available.

I have had some cases, clinically typical of weed dermatitis, in which I have been unable to find the specific excitant by patch tests. Of the proved cases, the ragweed family is the most common offender, and the short ragweed is much more important than the other members of this group. I have tested many patients with extracts of corn and the various small grains, but have never found positive evidence that these were a cause of trouble. I do not doubt that such cases occur, but they seem to be rare. I have seen one vicious case of sensitivity to quack grass in

which two years of treatment with the allergenic oil failed to give relief.

Dr. Lester W. Kimberly, Davenport: I wish to congratulate Dr. Trunnell upon the choice of his subject and a most excellent presentation. The term "weed dermatitis" has in the past been considered synonymous with poison ivy dermatitis, characterized by an acute dermatitis with erythema, swelling and vesiculation in the affected areas.

The syndrome of weed dermatitis, and more especially ragweed dermatitis, has been defined so well today that one should have little difficulty in recognizing it. To emphasize what Dr. Trunnell has already said, the eruption usually begins in the spring, reaches its height in August, and improves after the first killing frost. Farmers may have attacks during the winter, after handling hay. Repeated attacks, over a period of years, are typical. The sites affected are the exposed areas, such as the face, neck, back of the hands, wrists and ankles, with gradual spread to the rest of the body.

One of the most important results of this study was the determination that a relatively small number of weeds, and more especially short ragweed, was responsible for nearly all of the cases reported. One can prepare extracts of ragweed easily, as has been shown, and thus have an available supply for both diagnosis and treatment. Similar extracts of other weeds, suspected of causing dermatitis in individual cases, can be prepared. Poison ivy extracts may be diluted much more than the others. I have seen a patient develop a vesicular reaction in a few hours to a 1:40,000 dilution of poison ivy. Infants are immune to poison ivy, while approximately 50 per cent of adults have been found to be sensitized. It still remains to be answered why some individuals always remain immune and others develop a severe dermatitis, following only the slightest exposure. Likewise, we do not know why some plants are such potent sensitizers and others are not.

The oleoresin of some plants, such as short ragweed and tomato, is moderately water soluble and this may explain why some sensitive persons develop a dermatitis after picking tomatoes when the vines are wet, but not if they are dry. Direct contact with the plant is not necessary. Dermatitis often follows contact with contaminated intermediary objects as shoes, clothing, work tools, golf clubs, pets and the hands of other persons who have touched ivy.

Intramuscular injection of allergenic oils is not as popular a method of treatment as it was a few years ago, in spite of the occasional brilliant result, because a certain number of patients are made definitely worse. The oral method of desensitization if it proves successful, has many obvious advantages over intradermal or intramuscular injections. It has been my experience, however, that patients with a proved poison ivy dermatitis are reluctant to take any form of treatment which possibly may be irritating to them. In the case of individuals sensitive to ragweed, avoidance of the cause is practically impossible, and some method of desensitization should be

attempted. A change of residence may be necessary, if desensitization is unsuccessful.

VITAMINS IN OPHTHALMOLOGY*

BENJAMIN F. KILGORE, M.D., Des Moines

The rapid commercialization of vitamins has made the American public so vitamin conscious that even the purchase of shaving cream or beer is influenced by their presence. Such exploitation has not been entirely confined to the public, but has even invaded the practice of medicine until many of us are at a loss to know when to prescribe what and why. While there is still much to be learned about them as a whole, much has been gleaned of late that makes their use a valuable adjunct in the management of many conditions of the eye. Undoubtedly, additional research will add greatly to our present knowledge.

VITAMIN A

Vitamin A is found in cod liver oil, halibut liver oil, eggs, butter, milk, cream and dairy products. Vitamin A has "precursors," substances found in plants or tissues which when eaten are converted in the body into the vitamin. The best known precursors of Vitamin A are yellow pigments, which have been found in five forms, all closely related, and named alpha, beta, gamma-carotene, cryptoxanthin, and echinenone. The name carotene was derived from carrots, which furnish a rich source. Carotene or provitamin A and Vitamin A are found in green and yellow vegetables, such as lettuce, cabbage, peas, beans, green peppers, broccoli, spinach, raw carrots, fresh prunes, squash, tomatoes, bananas, yellow peaches, apricots, and in liver, salmon and fish oil products, such as cod and halibut liver oils. Vitamin A is stored in the liver, and is the only vitamin held in reserve; the rapid elimination of the others requires a daily minimum intake to maintain a balance. Since most of our winter foods are much reduced in vitamin content, due to the lack of green food for dairy cattle it is highly essential that a sufficient reserve be accumulated during the summer, or that our diet be supplemented.

The first change due to deficiency is poor dark adaptation, although this night blindness or heremeralopia may be due to pathologic changes in the eye, such as toxic amblyopia, retinitis pigmentosa, detachment of the retina, choroiditis, choriorretinitis and glaucoma, or it may be associated with diseases of the blood or blood vessels such as arteriosclerosis, anemia and eosinophilia. Fre-

quently night blindness is confused with presbyopia. The visual purple in the rods in the retina is produced from Vitamin A and is destroyed by light. Vitamin A deficiency delays its regeneration. Holm, Yudkin, Kriss, Smith and others have shown that the normal retina is very rich in Vitamin A and they believe that this may bear a direct relationship of the visual purple to Vitamin A. This delayed regeneration of the visual purple is the basis of the clinical test of the biophotometer to measure Vitamin A deficiency, although such tests have not been entirely standardized. Jeghers has found in a series of tests that 35 per cent had low photometric readings, and 12 per cent had manifestations of Vitamin A deficiency.

Harris reported a series of allergic patients in whom the deficiency was borderline in 50 per cent and pathologic in 22 per cent. In a series of hypertension patients, 64 per cent were borderline and 21 per cent deficient, and in tuberculous adults, 53 per cent were borderline and 45 per cent deficient. Most of the tuberculous patients were taking some Vitamin A, and the severity of the tuberculosis paralleled the severity of the Vitamin A deficiency.

Getz and associates in reporting on Vitamin A deficiency in normal and tuberculous persons concluded that normal healthy persons are not infrequently deficient in Vitamin A. (6.5 per cent to 11 per cent showed deficiency). All persons judged deficient after biophotometer tests were benefited by treatment with halibut liver oil in that their light threshold was lowered. These authors also concluded that the previously advocated therapeutic doses of Vitamin A in halibut liver oil were grossly inadequate. Larger doses up to 200,000 units daily gave a better response.

The oldest known deficiencies are xerophthalmia and keratomalacia, and these occur very rarely in the United States. Epithelial structures show a specific pathologic change in this deficiency. There is an atrophy of the epithelium with a reparative proliferation of the basal cells, which differentiate into keratinized epithelium. Wolbach and Howe showed that all changes were due to replacement of the columnar epithelium by stratified squamous epithelium. Sweet and K'Ang, reporting on the frequency of such eye lesions, observed a keratinization of the cornea and conjunctiva, with a disappearance of mucous cells. The corneal stroma first shows edema, then necrosis, and later ulceration with bacterial infection. Perforation of the ulcer leads then to panophthalmitis.

Other Vitamin A deficiencies may be manifest by photophobia, dry conjunctiva, blepharitis, folli-

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cular hyperkeratosis, and phlyctenular conjunctivitis. McAlester reports seborrhea of the lids or superficial marginal blepharitis, commonly referred to by the laity as granulated lids, as a dietary deficiency which responds to carotene. Laval states that women who are reducing frequently have a Vitamin A avitaminosis manifested by a low grade conjunctivitis, and a mild photophobia. Langdon reported a case of a young woman abstaining from dairy products, who showed a corneal dystrophy, which was cleared up after the use of cod liver oil. Diabetic patients may show an increased demand for Vitamin A. Ralli and associates working on depancreatized dogs, showed definite corneal epithelial changes which were prevented by the feeding of cod liver oil.

Spies of the University of Cincinnati reports 50 patients with ocular manifestations characterized by severe burning, itching, excessive dryness of the eyes, photophobia, granulation and redness of the lower lids, and often a complaint of a "scum" over their eyes. All of these patients showed improvement following the administration of Vitamin A in the form of carotene in oil or as oleum percomorphum in amounts ranging from 10,000 to 50,000 units daily.

Feldman believes that Vitamin A is not a cure but that it only assists. To substantiate this he cites a case of hypothyroidism which was not cured until the maximum dose of thyroid medication in addition to the Vitamin A had been administered. He also reports a case of renal calculus which showed no improvement until the renal condition was relieved. He believes that the time required for a cure is usually short, but did cite one case requiring 60,000 international units daily for seven months to effect a cure; 5,600 to 6,250 international units is the normal adult daily requirement, although 30,000 to 90,000 units were used with no ill effects from such massive doses. He also observed that minute doses of iodine, except where contraindicated, aided in the efficiency of the Vitamin A.

Cordes presents a review of 82 cases of persistent asthenopia whose age group varied from thirteen to seventy-eight years, with 51 per cent in the presbyopic age, and 61 per cent occurring in females. These patients complained of photophobia associated with pain and rapid fatigue of the eyes upon use, especially at night. The print blurred momentarily after ten or fifteen minutes' reading. Headaches and blurring of vision while driving or attending the movies was the complaint of a fairly high percentage, and a chronic persistent conjunctivitis was a rather frequent finding. Only 22 per cent gave a history of a degree of

night blindness, yet the average biophotometric reading for the group was 2.09 mft-c, which accepting Jegher's normal of 0.75 mft-c is very low, indicating possibly that many individuals may have some degree of night blindness of which they are not aware. These patients were treated with carotene in oil, an average dose of 30,000 units daily; 79 per cent obtained complete relief and 12 per cent partial relief, and in the majority of cases some relief was noted within a week or ten days from the time therapy was started.

Kimble and Gordon report several patients with low biophotometric readings who had gone through a period of two months on haliver oil alone without showing any improvement, who were then given one milligram of pure riboflavin daily along with 200,000 units of Vitamin A. This raised both the biophotometric readings and blood to normal. They are of the opinion that an additional factor is necessary for the utilization of the vitamin for the synthesis of visual purple and that riboflavin or ascorbic acid may act in this manner.

de Grósz believes that the local application of Vitamin A is of greater significance in the field of ophthalmology than is oral or intramuscular administration, due to its epithelization and protection of the epithelium. Balachowski and other Russian investigators obtained good results with Vitamin A and provitamin A in the treatment of keratoconjunctivitis, various types of keratitis, (superficial, burns and deep keratitis, dendritic ulcer, marginal infiltration and pannus) corneal erosions, trachoma, scleritis and blepharitis. de Grósz has found the local application of Vitamin A to be extremely useful in promoting epithelization of fresh corneal lesions, such as after the extraction of foreign bodies, as well as injuries and burns, especially caustic burns. He believes that bullous keratitis and the herpetic group of diseases, as well as neuroparalytic keratitis represent a most important indication for Vitamin A, and advises its uses in chronic eczema and ulcerative scrofulous blepharitis, and injuries of the lids. He has used for years an oil with a liquid petrolatum base or an ointment with a petrolatum base. One cubic centimeter of the oil contains 1,000 international units of Vitamin A, and the ointment contains 500 international units to one gram.

VITAMIN B

Vitamin B was the first vitamin recognized and studied as a dietary essential for man. Later it was found to be separable into two parts, the first retaining the name Vitamin B and the second being called Vitamin G or Vitamin B₂. Still later

the Vitamin G component was found to consist of several fractions, the exact number of which is still unknown. The original Vitamin B fraction is designated as thiamin, while the terms Vitamin B₂ and Vitamin G refer to "riboflavin" alone. Some of the other factors of the Vitamin B complex are nicotinic acid, Vitamin B₆ and the filtrate factor. The Vitamin B complex is found in unrefined cereals and grains, such as whole wheat bread, wheat germ and rice bran, brewers' yeast, beans, malted milk, beef liver, ham, bacon, almonds, spinach, parsnips and green asparagus. The richest sources are in wheat germ and rice bran, but these richest sources vary widely, and most of our highly refined foods supply practically none of the complex. Cooking and drying gradually destroy the Vitamin B₁ fraction; it is also destroyed by the addition of soda in cooking, and is dissolved in water. The riboflavin and other factors are stable.

Vitamin B₁ or thiamin is the antineuritic factor, and is necessary for the maintenance of good appetite and normal muscle control of the digestive tract, as well as for the optimal growth of infants and metabolism of carbohydrates. Vitamin B₂ or G or riboflavin is believed to play a part in the chemical processes of all living cells, and a deficiency produces loss of hair, nutritional cataract and retarded growth. The Vitamin B complex is not stored in the body, and a daily intake is essential, but it is not necessary that it be subjected to digestion before absorption, as is true of the fat soluble vitamins. The daily requirement is in proportion to the water exchange in the body, and is increased in diarrhea, increased urination, sweating, vomiting, lactation and surgical drainage. The Vitamin B complex has been found in the urine and feces.

The Vitamin B complex also contains substances necessary for the protection of the nervous system, and failure to assimilate the same may produce the same result as an insufficient amount. Toxic amblyopia and retrobulbar neuritis, whether due to sinus disease, tobacco, alcohol or multiple sclerosis, should be treated with large doses of Vitamin B complex. Laval reports a case of optic neuritis with diminished vision associated with pellagra, which was cured by the administration of yeast. He also reports a case of toxic amblyopia due to alcohol, whose vision improved from hand movements to 20/20 in two weeks with administration of yeast. Johnson reports five cases of toxic amblyopia, due to tobacco and alcohol in which he permitted the patients to continue their usual consumption of alcohol and tobacco, which varied from one to two pints of cheap corn

whiskey and a rather large amount of smoking tobacco. Thiamin chloride was administered instead of Vitamin B complex, and four of the patients showed marked improvement. Carroll reports a similar experiment in which he permitted the patients to smoke and drink as usual. He administered brewers' yeast, and all patients showed an improvement of vision from less than 20/200 to 20/30 or 20/20. All of the patients had similar fields showing centrocecal scotomas. He concludes that although tobacco-alcohol amblyopia was improved with Vitamin B, it is not a deficiency disease, for patients with pellagra had no visual disturbances. Benedict and Wagener observe that tobacco-alcohol amblyopia and retrobulbar neuritis responds to Vitamin B, but the other vitamins are of no value. He advises the abstinence of all drugs and tobacco, but permits some alcohol, the administration of Vitamin B complex or Vitamin B₁ concentrate, but believes that laxatives, pilocarpine sweats, vasodilators, and increased fluids are questionable in effect.

Kruse and associates reported riboflavin deficiency in a series of nine patients whose ocular symptoms and signs were itching, burning and a sensation of roughness of the eyes with mild photophobia. They have noted that one of the earliest signs of riboflavin deficiency is a specific type of glossitis, in which the tongue is clean, the papillae flattened and the color definitely purplish-red. The earliest ocular changes were revealed in slit lamp examinations, in which was observed a superficial invasion of the cornea by capillaries arising at either or both the nasal and temporal sides of the limbus from the anterior ciliary vessels. Later extensive interstitial infiltration with exudate appeared, sometimes diffuse, sometimes patchy. Riboflavin therapy in active cases brought about almost complete effacement of the lesions. Discontinuance of the therapy near the completion of the healing process permitted a recurrence of the corneal lesions. Sufficient time has not elapsed to determine whether vigorous therapy over a long period would bring about a complete disappearance of these capillaries. Kruse also reports two cases of severe interstitial keratitis associated with syphilis which showed marked improvement while under riboflavin therapy. He suggests the possibility that syphilis as an infectious process could directly or indirectly act through a mechanism which would affect nutrition, by disturbing its utilization.

VITAMIN C

Vitamin C is the antiscorbutic vitamin, and is ascorbic acid or cevitamic acid found in orange, lemon, grapefruit, apple and tomato juices, and

fresh fruits and vegetables such as peaches, strawberries, pineapple, cranberries, blueberries, asparagus and peas. It is rapidly destroyed by oxygen, especially at high temperatures, as in cooking. An average of 800 to 1,200 international units daily, or the equivalent to approximately two and one-half to three and one-half ounces of orange juice, is required by an adult.

Bouton of Detroit has observed in many cases of more or less impaired vision a clouding of the optic media, which is apparently a precursor of senile cataract. The impairment of the metabolism of the optic media, which represents various types of tissue, manifests itself in decreased transparency and can be measured in visual acuity. He conducted some experiments to determine the rôle of Vitamin C in metabolism of the eye, and reports some similar work done by Pavia in Buenos Aires. The level of ascorbic acid in the blood, blood plasma and urine was determined in a group of individuals, and the lowest values in both blood and urine were found in patients with visual disturbances. Five of the ten patients with visual disturbances showed improvement in vision and in ophthalmoscopic findings, but only those with vitreous opacities improved, while the lens changes remained the same. The younger the patients, the greater the improvement, and two weeks' treatment was sufficient for a therapeutic test. He concludes that ascorbic acid deficiency can be held partly responsible for impairment of vision associated with senescence of the human eye.

Bellows found the quantity of Vitamin C was greatly reduced or absent in the lens and aqueous of cataractous eyes, and that the concentration of Vitamin C in the blood of patients with cataract was less. Yudkin doubts the relation of Vitamin C to the formation of cataract, but believes it may have some function in the metabolism of the normal lens. He does report beneficial results with Vitamin C in hemorrhages of the choroid and retina.

VITAMIN D

Vitamin D is frequently referred to as the antirachitic vitamin, and is found in appreciable amount in butter, egg yolk and liver, with the most abundant natural source found in the ultraviolet rays of the sun. It has to do with the metabolism of calcium and phosphorus. Laval denies its value in the treatment of myopia. Blackburn and Knapp report excellent results in a few cases of keratoconus with massive doses of Vitamin D. They treated eleven patients (eighteen eyes) with Vitamin D and calcium diet for a period of three months to three years. All patients had objective and subjective symptoms. Sixty to 200 drops of

viosterol were given in conjunction with calcium proportioned to the milk intake. Vision as well as the objective findings improved. The objective findings were observed by the microscopic appearance, the corneal microscope, cycloplegic refraction, ophthalmometric examination and a plaster cast comparison made before and after the treatment. He concludes that Vitamin D complex has a definite place in the therapy of keratoconus.

Knapp reports 53 cases of progressive myopia which were treated with Vitamin D, 60 drops of viosterol and calcium. He concludes that in the presence of a calcium imbalance there may be a weakening of the fibrous tunic which may give rise to myopia. His results were encouraging in that 35 per cent had a reduction in their myopia, 15 per cent remained stationary, and 45 per cent progressed. Most of the patients noticed increased visual acuity, and he concludes that Vitamin D complex has a field of usefulness, at least in the prevention of the onset of myopia.

Laval in reporting 48 patients treated with Vitamin D over a period of three to six years, concludes that Vitamin D is of no help either in reducing the amount of myopia, keeping it stationary or preventing any increase.

VITAMIN K

Burch and Meade of St. Paul, Minnesota, report one case of retinal hemorrhage of unexplained etiology classified as idiopathic hemorrhagic retinitis, which showed marked improvement with the administration of Vitamin K.

SUMMARY

While no definite conclusions can be derived from these observations of the use of vitamins in ocular therapeutics, the present work does indicate their usefulness. Vitamin A is worthy of use in night blindness, whether actual or borderline, as well as in those aggravating and therapeutically obstinate cases of low grade chronic conjunctivitis with itching and burning, associated with photophobia, and in blepharitis, and asthenopia failing to respond to refraction. Likewise its local use in corneal and lid conditions is worthy of further observation. The dosage seems comparatively arbitrary, but most observers prefer large rather than small doses, vaying from 10,000 to 200,000 daily, with 30,000 to 50,000 the most popular dose.

Vitamin B₁ has given almost spectacular results in retrobulbar neuritis and toxic amblyopia. The author has used it in his office with singular success in a few cases.

Riboflavin has been suggested for use in both corneal conditions and in conjunction with Vita-

min A in night blindness, where it serves perhaps as a sort of catalytic agent.

Vitamin C, or ascorbic acid, has apparently some good effect on the optic media, although its results in senile cataract have been disappointing.

Vitamin D has less place in ophthalmology, although its use in keratoconus and myopia may be of some value.

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Discussion

Dr. Ira N. Crow, Fairfield: Certainly there has been no lack of enthusiasm on the part of either the laity or the commercial houses over the merits of vitamins. In fact the development has been so rapid that the physicians can hardly keep up with the size of the dosage. Generally speaking, however, where

needed at all, the larger doses are most valuable. Only Vitamin A and possibly Vitamin D can be stored in the body in amounts which will last for months. Therefore, in the absence of disease or previously inadequate diet, other vitamin supplements to normal diets are of no value. Particularly is this true of ascorbic acid found in Vitamin C. Beyond the point of normal saturation of this acid, the body promptly eliminates the excess.

Because of economic conditions, unusual food habits or illnesses, many patients are in a condition of marginal or actual avitaminosis; and this condition is usually a multiple vitamin deficiency. What we now consider as the amount of vitamins required for our daily needs seems to be greatly out of proportion to the amount necessary for treatment in case of deficiency. Consequently, if large adequate doses do not bring the desired results in a few weeks, it is unnecessary to carry this treatment further. I am wondering if assimilation, which we know varies with each individual as well as each disease, is not a factor in this abnormal ratio. Certainly age must play an important part. Furthermore, allergies have some effect. In addition there is the apparent catalytic action of riboflavin and possibly Vitamin C, when given with other vitamins. There is a very definite relation between avitaminosis and diseases, especially those of the liver, pancreas and thyroid gland. All of these problems must be better understood before we have a rational treatment basis on which to work.

I have given Vitamin A to a number of patients with partial blindness with very good results. Corneal ulcers from any cause, and especially molten metal burns, can cause considerable trouble. In the past year I have used Vitamin A in oil for these patients, and I feel sure the healing time has been shortened. Vitamin B₁ has given surprising results in retrobulbar neuritis and toxic amblyopia. The vision of one of my patients with toxic amblyopia dropped from practically normal to a place where friends were not recognized across the room even when he was sober. He is forty years of age, and has been a heavy user of tobacco and alcohol in all forms for twenty years. I took him off of both and gave him large doses of Vitamin B₁. In four weeks his vision was much improved and in six weeks it was 20/25. He has started drinking again but continued his Vitamin B₁, and when last seen his vision still remained 20/25. My experience with Vitamin C in cataracts has been discouraging.

Dr. Kilgore has given us an excellent outline of this subject and he should be commended upon the conservative manner in which he treated it. I have greatly enjoyed his essay.

Dr. E. E. Lashbrook, Estherville: I wish to congratulate Dr. Kilgore on the presentation of his essay. He has presented the subject in a very complete manner and leaves very little to be considered. The main point which has been brought out is the importance of a complete and thorough history for arriving at a correct diagnosis. Vitamins have a very useful field when used correctly. There will be some

changes; new vitamins will be added and some of these already brought forth will be divided into different groups. Vitamin B is an example of what has been done. In the few minutes allotted me I wish to stress the disease conditions encountered in ophthalmology for which vitamins have an important and definite indication.

One of the earliest functional changes observed in association with Vitamin A deficiency is a decreased ability for dark adaptation or nutritional night blindness. On coming from the light into a room which is dimly lighted nothing is visible; one finds after a short time that a few objects will be seen. Later others will be visible and at the end of one-half to three-quarters of an hour it may be possible to see all the grosser objects in the room with surprising distinctness.

Various instruments have been devised for the precise measurement of the light sense. The photometer of Foerster is perhaps the earliest. Nagel's adaptometer is a precise instrument but its bulk is objectionable. Recently Ferree and Rand have devised a tubular instrument which may be used for this purpose, and which has the additional advantage of a small artificial pupil in the eyepiece, to eliminate the variable factor due to fluctuations and progressive changes of the opening of the pupil. The photometric glasses of Tscherning are a recent addition to the equipment available for the measurement of dark adaptation. These are a set of neutral gray light filters, or in effect, smoked glasses of various known densities and about 37 millimeters in diameter.

It will be remembered that the light sensitive nerve endings are of two kinds, the rods and the cones. At and near the fovea, over an area the diameter of which corresponds to about two degrees in the visual field, the cones alone are present, while the rods make their appearance at about this limit and come to predominate in the periphery. The anatomic distinction between the two lies in the manner of their connection with the nerve cells of the retinal layers below. However, while the rods themselves are uniform in microscopic appearance, the cones vary greatly in appearance, according to their location, from center to periphery.

The photosensitive pigment (visual purple) absorbs the light and as a consequence is decomposed into products which initiate a nerve impulse. Other chemical systems immediately intervene to resynthesize these products to a new molecule of receptor pigment, or they are disposed of as waste materials and an entirely new molecule is made from fresh raw material to take their place. The quantity of visual purple which is present at any instant will depend on the difference between the rate of decomposition and the rate of synthesis of these reactions, and is displaced so that visual purple is practically absent from the retina. While in the dark the equilibrium is displaced in the opposite direction and visual purple is present in maximum quantity. Normal vision in dim light, whatever may be the details of the reaction, depends

on an equilibrium somewhere between these two extremes.

In diseases of the optic nerve and tract, dark adaptation has been found to be markedly restricted, often with nearly or wholly unimpaired central acuity and visual fields. This has been found when the condition within the nerve is toxic (infectious or pre-atrophic). For example, adaptation is normal in simple papilledema but is impaired at the height of an optic neuritis, its return to normal being a favorable prognostic sign. In tabes the impairment is early and persistent.

Since the pathognomonic pathologic features of Vitamin A deficiency are the consequence of epithelial changes, these will be described in some detail. Replacement by keratinizing epithelium is a late effect and follows a nonviable degree of epithelial atrophy. Reparative proliferation on the part of basal cells follows in epitheliums of the stratified and transitional types, such as those of the cornea, conjunctiva, bladder, ureter and renal pelvis. The basal cells engaged in the reparative proliferation may maintain a continuous layer from the beginning, and hence the process appears to be true metaplasia. In other epitheliums, such as those of the ducts of glands, the respiratory mucosa and the uterus, where focally distributed basal cells alone have proliferative power, scattered areas of new cells appear. These groups of new (reparative) cells by their continued growth, undermine, coalesce, and replace the original epithelium by a stratified keratinizing epithelium. In both experimental animals and infants, an atrophic epithelium having the histologic appearances of viability may remain for a period above the replacement epithelium. The layer may consist at first of only one or two layers of flat cells, as if the first effort was to cover the surface as rapidly as possible. Continued multiplication of cells results in the epidermal tissue and separation of the atrophic original epithelium.

Many of the striking gross pathologic features of the deficiency in man and in animals are the outcome of the accumulation of the keratinized epithelial cells in glands and their ducts and in other organs. In glands, cysts of considerable size, filled with a yellowish cheesy mass of keratinized cells are formed. Early workers regarded such cysts as abscesses, and hence Vitamin A was believed to protect against infection.

The term xerosis is applied to dryness of the membrane. The xerosis spots are whitish in color, glisten like fat, and look like epidermis covered with dry foam. An analogous change takes place in the cornea, which looks dull, lusterless and dry; the parenchyma is found to have lost its transparency. Xerosis occurs as a local disease or it may be an accompaniment of a general affection. Xerosis occurs in undernourished persons, and begins at the outer and inner part of the bulbar conjunctiva in the form of triangular areas. Keratinization, clinically termed xerosis, occurs first, when fibrous tissue, such as that from trachoma or pemphigus, occludes the conjunc-

tival glands; second, in epithelial new growths on the surface of the eyeball; third, from exposure; and fourth, as a milk form of xerosis associated with night blindness in children and in adults due to defective nutrition and in a more severe form due to deficiency of Vitamin A resulting from famine and exhausting diseases such as measles, cholera, typhoid, etc.

Keratomalacia is a deficiency disease due to improper feeding and the absence of the fat soluble Vitamin A from foods.

In blepharitis squamosa the skin on the margin of the eyelid around the cilia is hyperemic and covered with fine gray flakes or scales resembling dandruff. These scales are attached loosely and may be removed easily, leaving nothing but a hyperemic base. Since the follicles are not destroyed, the cilia will regenerate after removal. There is usually an accompanying seborrhea, and when the secretion of sebum is marked it collects around the base of the cilia in the form of yellowish crusts resembling soft wax. The absence of an ulcerated base differentiates this condition from blepharitis ulcerosa.

In blepharitis ulcerosa the removal of the crusts shows an ulcerative area. There is suppuration of the hair follicles and the sebaceous glands. As the result of the suppuration, small ulcerated areas are scattered along the margin of the lid. The eye lashes are destroyed. If the cilia remain they are stunted. The edges of the lids are thickened and red and may be everted. The eyelids become heavy and droop. The eye lashes turn in. Epiphora occurs, due to the eversion of the lid with or without obliteration of the puncta. The thickened lids do not come together and the eyeball is exposed. Tears irritate the lower lid, followed by a dermatitis.

Phlyctenular conjunctivitis is the focal type of conjunctival inflammation occurring in children. There are red elevations about the size of a millet seed. It is in a small spot and the surrounding area is normal. The entire process is beneath Bowman's membrane. Few or many elevations may be present. A slight injury may precipitate an attack of phlyctenular keratitis. It happens in the first six years of life. The yellow phlyctenules occur in the lumbus and cornea. Three types of vascularization appear: vascular infiltration, vascular fasciculus and eczematous pannus. Photophobia and blepharospasm are distressing symptoms. This condition seldom occurs in a healthy child.

The local treatment of infections, burns and fresh wounds with applications of ointments containing cod liver oil or concentrates has been enthusiastically advocated. Colloidal carotene in salt solution has been used in local inflammation of the eyes. It is a question if there is much value in the local vitamin application. Large doses of carotene may accumulate in the skin in amounts sufficient to cause a deep yellow color known as xanthosis cutis. This yellowness of the skin may be mistaken for jaundice. The only symptom is a seborrheic dermatitis. In large long

continued doses it is well to add Vitamin B complex or Vitamin D.

Vitamin B and the different types, while not acting directly on the eye or its appendages, are of great importance in factors depending upon proper growth and nutrition. This vitamin is used for retarded growth, amblyopia, neuritis and the symptoms of itching and burning.

In clouding of the optic media and senile cataract of older people with impairment of vision, it is well to try Vitamin C or the antiscorbutic vitamin.

Vitamin D has been used in progressive myopia, but it is too early to give any definite opinion as to its value in this connection.

COMPLICATIONS IN MIDDLE EAR DISEASES FOLLOWING SULFANILAMIDE THERAPY*

F. HAROLD REULING, M.D., Waterloo

Since the discovery a few years ago of the striking therapeutic value of sulfanilamide, this drug has been widely used in a number of diseases and has, on the whole, given excellent results. In fact, the results have been so satisfactory there is some danger that its limitations and untoward effects may be overlooked. Many have published reports regarding the use of sulfanilamide in middle ear disease. Most of these authorities are wholeheartedly in favor of its use in such conditions. However, there are some who feel that it has led to an increase in complications. This view is borne out by personal experience; and a summary of the literature and additional case reports seems warranted.

The most extensive work on the subject is that of Maybaum and his associates. They emphasize the service rendered by sulfanilamide and the extent to which the prognosis in such complications of otitis media as meningitis, sinus thrombosis and brain abscess, has been improved. They at present favor its use only when complications occur. If it is to be given in uncomplicated otitis media it must be administered before suppuration has taken place. Their objection to it is that when it is given during an acute otitis media it may produce an apparent improvement of the middle ear infection, indicated by a diminution or absence of discharge. However, examination may reveal an unresolved infection, that is, a thickened drum with absence of landmarks. Resolution may be much delayed or there may be a recurrence of signs of infection of the middle ear with evidence of involvement of the mastoid; or an otitic complication may rather abruptly appear. Sulfanilamide has a tendency to mask symptoms so that complications may run an asymptomatic

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or atypical course. It is contraindicated during the course of a suspected mastoiditis, before operation, and after operation unless some complication has been diagnosed. In petrositis it should not be given during the period of observation; but if operation is indicated it should then be given promptly. These authors cite several cases which support the views here presented.

Jones issues a similar warning. He too feels that sulfanilamide will mask the signs in acute suppurative otitis media so that a mastoiditis may develop with little indication. He has a good deal to say about the usefulness of sulfanilamide but states that it is in the management of otitis media that otologists employing it will "encounter their greatest grief."

Hubert believes that sulfanilamide gives mastoiditis an insidious appearance, delaying or masking the familiar symptoms. He found, in some cases of mastoiditis first treated by sulfanilamide, the type of lesions seen years ago when operations were performed too late. Consequently, he feels that in using sulfanilamide one must watch carefully for more or less latent complications. He too emphasizes that sulfanilamide is of the greatest importance in the treatment of the complications of mastoiditis.

Smith and Coon report two cases of meningitis of otitic origin in which recovery took place following the use of prontosil and sulfanilamide. The importance of their report to this paper is their suspicion that complications in one of their cases may have been masked by sulfanilamide. This patient was a child, four years of age, who, during the course of an acute suppuration of the middle ear, had received moderate doses of sulfanilamide. Following mastoidectomy a clinical picture of sepsis appeared and the cause was uncertain. A Tobey-Ayer test was done because a thrombosis of the lateral sinus was suspected. The spinal fluid was cloudy and showed a high cell count, and on culture, *Streptococcus haemolyticus*. Revision of both mastoidectomy incisions was done and intensive sulfanilamide therapy was given, followed by satisfactory recovery. The authors advance the theory that sulfanilamide had controlled the meningitis to such an extent as to mask the clinical picture. They are not sure about this, but do feel that when sulfanilamide has been given and the patient has a septic temperature one must suspect meningitis even if other symptoms are lacking.

A recent article by Woodward is highly favorable to the use of sulfanilamide in acute otitis media and mastoiditis. He is inclined to believe that it prevents complications. However, Page,

in discussing Woodward's paper, issues a warning. He feels it has been extremely valuable in meningitis, but that in acute otitis media and mastoiditis it may mask the signs so that great care is needed in the interpretation of findings. He has been told that the roentgenologist may often be confused by the action of this drug on the mastoid. Page feels inclined to avoid using it except in severe complications.

Rosen of New York recently reported a case of acute mastoiditis masked by sulfanilamide. The patient had been given sulfanilamide following myringotomy, during the course of an acute otitis media; and improvement had taken place. Suddenly the patient became much worse. Mastoidectomy revealed extensive purulent bony necrosis. Rosen feels that "while sulfanilamide will have a definite place in otology, at present its unquestioned efficacy in acute mastoiditis is not proved." Law, in discussing this paper, adds the warning that whenever these patients are referred to the roentgenologist the physician should specify if sulfanilamide has been given. It tends to change the appearance of the films to such an extent as to give an acute mastoiditis the appearance of a nearly normal mastoid. It is absolutely essential, therefore, for the roentgenologist to know whether or not sulfanilamide has been given.

The articles summarized above are not the only ones dealing with the subject; but they do serve to illustrate the general view of those who feel there is danger that sulfanilamide used in middle ear diseases may mask the symptoms of complications. Two additional cases are herewith presented which support the opinions of the authors whose work is discussed above.

CASE REPORTS

Case 1. A well-nourished white girl, nine years of age, presented herself on May 12, 1939, with the history that the left ear had begun draining five days previously, after a few hours of earache. There was profuse purulent drainage from an adequate opening in the posterior inferior quadrant. Because a middle ear infection had cleared promptly a year previously under sulfanilamide therapy, she was placed on sulfanilamide again. Four days later the ear was dry and the drug was stopped. Two days later, on May 18, she returned with the ear bulging. It was opened under a local anesthetic and sulfanilamide therapy was again started. On May 26, after being well for a number of days, she developed a temperature of 104.6 degrees. At this time the middle ear was dry except for a slight mucous discharge. There was very slight tenderness over the tip of the mastoid and some

tender glands in the neck. X-ray of the mastoid was negative. During the next four days the temperature varied between 100 and 102 degrees. The white blood count was 18,600, the red blood count was 4,200,000, and the hemoglobin was 85 per cent. Because of persistent although slight tenderness over the mastoid and persistent temperature and an entirely negative general physical examination, a mastoidectomy was performed on May 29. A moderate degree of infection was encountered in the tip and around the antrum. The lateral sinus had a firm hard plate of bone over it and it was not exposed. She ran a normal post-operative course for four days and then began having some increases of temperature up to 103 degrees. Sulfanilamide was started again. Three blood cultures were negative, but on June 8 a blood culture was reported positive for a hemolytic streptococcus. The same day the jugular vein was tied and the lateral sinus was exposed. On opening the lateral sinus a large quantity of free pus was found. It was impossible to obtain free bleeding from either the torcular or bulb end of the sinus. With the aid of two transfusions she subsequently made an uneventful recovery.

Comment: At no time during this girl's illness did she present a clinical picture of lateral sinus thrombosis and the true picture was not uncovered until we had a positive blood culture. A Tobey-Ayer test would have been of considerable help in this case. The use of sulfanilamide probably modified and masked the clinical picture.

Case 2. A poorly-nourished white boy, seventeen years of age, had a spontaneous painless rupture of his right ear on April 5, 1939, accompanied by an intense pharyngitis. A mastoidectomy had been done elsewhere on the same ear eight years previously. Shortly after he was seen, sulfanilamide therapy was started. On April 12 he was brought to the hospital with a tentative diagnosis of meningitis because of severe pain in the back of the neck, neck rigidity and a temperature of 103 degrees. Lumbar puncture revealed a spinal fluid under slightly increased pressure, but with a cell count of three and a negative chemical analysis. The old mastoid wound was retracted and showed no evidence of inflammation. X-ray disclosed a well exenterated mastoid with no cells present. Repeated blood cultures were negative. Temperature ranged between 100 and 103 degrees. Neck rigidity diminished, but the patient had persistent pain in the right side of the head. There was a very slight mucous discharge from the mid-

dle ear. After a rather stormy week in the hospital, it was decided to explore the old mastoid wound and surrounding dura. At operation a hard plate of bone was found to have reformed where the cortex had been removed and the periosteum had been drawn together. When this was removed pus was encountered which was bathing an exposed lateral sinus. The lateral sinus wall was thick and had lost its luster. On opening the lateral sinus, free pus was obtained and finally free bleeding was obtained from the torcular end by following the vein back, but free bleeding could not be obtained from the bulb end. The hemolytic streptococcus was isolated from the pus in the lateral sinus. During his convalescence he had one transfusion and sulfanilamide for one week after his surgery.

Comment: A Tobey-Ayer test would have aided in this case. The symptoms were constantly those of a meningeal irritation and because the patient had a well done mastoid and showed no redness or swelling in the old incision he was not opened up as soon as he should have been. However, sulfanilamide undoubtedly masked his lateral sinus thrombosis symptoms.

CONCLUSION

In conclusion, it should be stated that the purpose of this paper is in no way to minimize the therapeutic value of sulfanilamide. It is to caution the practitioner against the indiscriminate use of this drug in middle ear diseases and to warn him that when he does use it he must watch very carefully for signs of complications, remembering that these may be, at least, partially concealed.

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INTRA-ABDOMINAL OR PERITONEAL ADHESIONS*

ERNEST M. KERSTEN, M.D., F.A.C.S.,
Fort Dodge

The subject of intra-abdominal or peritoneal adhesions is of great interest and importance to the general surgeon. In the past, much work has been done in an attempt to find something that would prevent their formation, and this paper will be a review of the recent literature, dealing particularly with the use of ferments.

Adhesions are at once the bane and salvation of all surgical procedures in the peritoneal cavity. The reparative powers concerned in their production constitute a defense of the utmost importance, without which surgery would be impossible. The trouble caused by their undesired appearance and measures for their prevention have caused a great deal of thought and study. The problem grows continually greater because of the impunity which now characterizes surgical attack upon the abdomen. Since we have more specific drugs and methods for treating pelvic infections, we have a ray of hope here for fewer pelvic peritoneal adhesions.

There are few tissues in the body more sensitive to injury and more rapid in reaction and repair than the peritoneum. In its inflammatory reaction, in which exudation of fibrin is a very important feature, follows promptly upon mechanical or chemical trauma and infection. Degeneration or separation of the serous surface cells is easily brought about. Fibrin appears rapidly, especially where injury of the serosa occurs. Only a few hours contact of such irritated surfaces during the period of intestinal inactivity may be sufficient to permit an agglutination so firm that it will not yield at the onset of peristalsis; organization proceeds rapidly and the union becomes permanent.

Fortunately, the processes of repair are so rapid and effective that the integrity of the surfaces is often restored before permanent adhesions take place. The early onset of peristalsis is favorable to this by separating plastic agglutinations and preventing continuous contact of raw surfaces while healing proceeds. It is often remarkable how completely the exudates and adhesions in extensive sepsis are removed, leaving the peritoneal cavity practically normal. Adhesions normally show a tendency to spontaneous retrogression. They undergo the same evolutionary processes as all other scars. These, combined with the tug and torsion of mobile viscera, obliterate many of them even in the fibrous stage. There may be a striking

disproportion between the degree of trauma and the response by the peritoneum in the form of adhesions. An apparently trivial trauma may result in extensive adhesions, while few or none may follow prolonged and damaging manipulations. In rare instances they may be progressive. Without clearly discernible cause, they may advance to ever wider limits until the abdominal viscera appear as one firmly agglutinated mass. These cases are designated by many writers as "chronic adhesive peritonitis." It seems that the progressive tendency to form adhesions is inherent in certain types of individuals with disturbance in the regenerative balance of tissues and ferment chemistry.

A great variety of experimental work has been stimulated in an effort to prevent peritoneal adhesions. The most recent attempts have been the introduction of amniotic fluid and the proteolytic ferments, trypsin, pepsin and papain, and still more recently, heparin. Recent studies have been directed especially toward the biochemical principles involved in the development and retrogression of adhesions, and attempts to imitate the natural processes of prevention. Most of these are based on the importance of leukocytic ferments in the process of exudate absorption.

The normal response of the peritoneum to injury is a rapid exudation of serous or serosanguineous fluid containing fibrin which tends to agglutinate adjacent surfaces, and an elevation of the leukocyte count of the peritoneal fluid due, at first, to an increase of polymorphonuclear cells and later to the invasion of large numbers of phagocytic macrophages. Many substances have been tried in an attempt to modify this reaction. Much attention has been paid to the use of amniotic fluid and amniotic fluid concentrate, as advocated by Warren and Johnson and others. As a result of considerable experimental work by various workers, it can be concluded that amniotic fluid does not prevent adhesions, although there is some evidence to show that adhesions which develop after its use are not as dense or numerous. Its effect on the peritoneum is to increase the irritative response and this is assumed to effect a beneficial influence on reparative processes, especially if peritonitis of a bacterial origin supervenes. Its use is probably harmless, although severe pain, anorexia and a high blood leukocyte count may occur with a severe reaction.

In 1932 Ochsner and Garside reported on five years experimental work with trypsin and papain. They soon found that the normal proteolytic ferment of the body, trypsin, gave less satisfactory results than papain. Therefore, they have devoted most of their time to experiments with papain. It

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was the plan in their original investigation to determine, first, whether various strengths of the digestive solutions would in any way exert a deleterious effect on the peritoneum; and second, whether they would exert any effect on the formation or the reformation of the adhesions. Their deductions were that the excessive fibrinous adhesions, which form following severe peritoneal trauma, usually disappear after their function has been served, as a result of tryptic digestion, the digestive enzyme being derived from the destroyed polymorphonuclear leukocytes. Possibly in those individuals with an "adhesions diathesis" an insufficient amount of digestive ferment is liberated to remove the excessive amounts of fibrin which subsequently becomes organized. If this hypothesis is correct, they logically reason that the addition of a similar ferment to the peritoneal cavity would be of value in preventing the reformation of adhesions since the normal process of digestion of fibrin would be minimized. Therefore, an attempt was made in that investigation to determine the relative efficiencies of the two digestive ferments, trypsin and papain, one of which is an animal enzyme, whereas the other is a vegetable ferment.

Their conclusions after a large series of experiments on dogs and rabbits are as follows: "Peritoneal adhesions are protective in the presence of infection. Normally, the diffuse fibrinous adhesions which form in the peritoneal cavity following mechanical, chemical or bacterial trauma disappear after their usefulness has been served, the fibrin being digested by a proteolytic ferment liberated from polymorphonuclear leukocytes. If the fibrin is not removed, it becomes organized; i. e., replaced by fibrous tissue. Following division of the fibrous adhesions, they may recur. Individuals with an inherent tendency toward the development of fibrous tissue; i. e., 'adhesions diathesis' or 'keloid tendency' are especially likely to reform adhesions after their division." Following division of pre-existing adhesions, adhesions reformed in 100 per cent. If, however, saline solution was added to the peritoneal cavity following division of the adhesions, few or no adhesions reformed in thirteen per cent. If trypsin solution was added to the peritoneal cavity, few or no adhesions formed in 42 per cent, and if papain solution was added, few or no adhesions formed in about 90 per cent. It is evident that experimentally, at least, digestive ferments (especially papain) are of value in preventing the reformation of peritoneal adhesions.

In 1936 Ochsner and Storck again reported further on the use of papain in the prevention of peritoneal adhesions. This investigation is based upon an analysis of 231 cases which had been treated by a total of twenty-two surgeons in addition to the

authors. They felt that the observations by a large group of surgeons would be of more significance than those made by a small group. Although papain was definitely beneficial in the prevention of the reformation of experimentally produced adhesions following their division, it was realized that a prolonged period of observation of clinical cases so treated should be made before any definite conclusions could be drawn concerning its clinical value, because clinically it is not possible, as in the experimental animal, to re-operate upon patients at will in order to determine the presence or absence of adhesions, and also because many patients may be perfectly comfortable with adhesions for years and then for no apparent reason develop signs of obstruction which require re-operation. In this series of cases a subsequent laparotomy following the use of papain was performed in 37 cases. In most instances the laparotomy was performed for some reason other than adhesions. In the 231 cases analyzed (122 patients on whom previous operations had been done), an average of two and one-half operations for each patient was performed, and 40 per cent of these operations were for peritoneal adhesions and intestinal obstruction. From the large number of operations previously performed for obstruction and adhesions it is evident that many of these patients had an "adhesion diathesis". In this investigation papain was used in 89 per cent of the cases to prevent the reformation of adhesions after their division, and in only eleven per cent to prevent the formation of adhesions at the original operation. Conclusions of this investigation are interesting.

The low mortality rate, 1.8 per cent, in the entire group of 231 cases in which there was considerable operative manipulation, is an indication that the papain solution *per se* is harmless. In this investigation Hartmann's combined physiologic solution was used as a diluent. Excellent and good clinical results were obtained in 88 per cent. These authors felt that the close correlation between the good results obtained in the experimental work five years ago and the present study was of great significance because of the percentage of cases in which clinical relief followed the employment of papain and the frequency with which the absence of adhesions was demonstrated at laparotomy subsequent to the use of papain. In the experimental animal, prevention of reformation of adhesions following their division was possible in 90 per cent. In their present investigation, excellent or good clinical results were obtained following the division of adhesions and the use of papain in 88 per cent. In the 37 clinical cases in which a subsequent operation was performed fol-

lowing the division of adhesions and the introduction of papain, no adhesions were found in 59 per cent, a few adhesions were found in 35 per cent, and in only five per cent (two cases) were the adhesions as great as they were before the use of papain. It would seem, therefore, that in approximately 94 per cent papain had been efficacious in either preventing or definitely diminishing the number of adhesions. In a personal communication from Dr. Ochsner recently he states they still feel that papain is the best method available in the prevention of the reformation of adhesions, although he has done no additional research work since their publications in 1936.

In contrast to this is the report of Elliott and Meleney of New York in 1937. A total of 72 cases are reported here, and papain was used in 34 of these 72 cases. These authors make one comment which might be well to bear in mind, and that was that theoretically, at least, papain should not be used in the presence of catgut suture material, for fear of a solution of the abdominal repair with the resulting disruption of the wound. They, therefore, used silk in all but three cases. Their comment on this series of cases is as follows. In general, more satisfactory results were obtained in their "no papain" group than in the group in which the drug was employed. Their figures would tend to indicate that the adhesions in the papain group were somewhat more extensive than in the controlled group. Their conclusion was that their figures did not indicate an appreciable improvement of follow-up results in the series in which papain was used, as compared with the series in which no papain was employed, and that a long period of observation on a large group of cases will be necessary before any definite conclusions concerning the efficacy of papain can be reached. They also felt that in reviewing this difficult type of case the inclusion of the controlled series is essential to the proper evaluation of results.

Bogart in 1937 reported an experimental study made on 38 rabbits and 30 patients to determine the value of papain in the prevention of the reformation of intra-abdominal adhesions. The summary of his experiments on the animals was as follows. When papain in a solution of sodium citrate was used, the formation of adhesions was the least, and when adhesions formed, they were very slight. Sodium citrate alone has a mild action in preventing experimental formation of adhesions. He felt that papain in a solution of sodium citrate had a decided influence in the prevention of adhesions, seemingly more effectual than any other substance used in these experiments. In the 30 clinical cases in which a solution of papain was used, two patients died, but these deaths could not

be attributed to the drug used. In two the results were poor, and in 26 they ranged from good to excellent. He used a solution of .08 per cent of sodium citrate in distilled water in which papain was dissolved to make a satisfactory solution, because he felt that sodium citrate had a synergistic action with papain.

In March, 1940, Lehman and Boys reported their experience in the prevention of peritoneal adhesions with heparin. Heparin is the anticoagulating factor in the blood stream. It was first isolated by Howe in 1918, but it was not until 1933 that a purified form satisfactory for experimentation was first available. Since the process of organization always take place in fibrin and cannot take place without fibrin, it seems logical to expect that the prevention of the formation of fibrin will prevent the organization which is the essential cause of adhesions. One cannot prevent exudation, but it may be possible to prevent the coagulation of the exudate. It is known that heparin will prevent the formation of fibrin in the blood. The possibility suggests itself that heparin might also prove effective in preventing this reaction in an exudate, and thereby might constitute a physiologic preventive of peritoneal adhesions. These authors present a primary report of a series of animal experiments testing this hypothesis. After the initiation of their study they found that Miki and Satani in 1935 had experimented with heparin in the peritoneum of rabbits with some success. They found heparin saline solution much superior to sodium citrate, and did not observe any toxic effects of heparin in their animals.

Heparin is believed by Meleney and other recent investigators to be an antithrombin. In proper dosage it will completely prevent any formation of fibrin in the blood. Recently it has been applied extensively to vascular surgery, both in the laboratory and the clinic. Its application to prevent the formation of vegetations in endocarditis has been proposed. Except as noted above, no record of the employment of heparin in the prevention of coagulation of other exudates has been found. Heparinization of animals and man in vascular surgery, to an extent that is effective in preventing thrombosis, has not been found to be hazardous from the point of view of wound hemorrhage, if complete hemostasis is obtained at the time of operation. Lehman and Boys employed two sets of experiments with corresponding control groups, one with rabbits and the other with dogs. In the former the formation of adhesions caused by mechanical damage and bacterial contamination was studied. In the latter, to simulate the usual surgical problem, adhesions were first formed as the result of peritoneal contamination. They were

then divided and the degree of their reformation was observed. A total of 70 rabbits and 82 dogs were employed. Their discussion of their results is as follows. "There is no question that heparin has proved astonishingly effective in preventing adhesions under the condition of these experiments. Although the number of experiments is limited, the use of heparin offers considerable promise for this hitherto unsolved surgical problem." They feel that the work has not progressed sufficiently to warrant application to the patient. "Continued study of possible dangers, of effective dosages and the details of administration is being carried on. It is hoped that the results of this further investigation will not prevent clinical application."

There is no problem in which the clinical effectiveness of treatment is less easily estimated. A great number of patients must be treated with heparin, or any other substance, before a sufficient number of cases will come for re-operation or postmortem examinations to offer a basis for judging the efficiency of the method employed. It would seem obvious, therefore, that primary acceptance of a method to prevent adhesions must rest upon laboratory evidence. On the basis of the present experience with this series of experiments, the chief danger in the employment of heparin seems to lie in the occurrence of intraperitoneal hemorrhage. Heparin prevents the formation of fibrin, but does not dissolve or destroy it. It is logical, therefore, to assume that hemorrhage should not be a real danger provided complete intraperitoneal hemostasis is effected before closure of the abdomen. On the other hand, further experience may prove intraperitoneal hemorrhage to be a hazard of important magnitude. Bleeding in the abdominal wound from mild general heparinization, following absorption of heparin from the peritoneum, has not occurred. It should be of no greater danger than bleeding from wounds following heparinization in vascular surgery. If the present work is confirmed, and hemorrhage does not prove to be too great a danger, one might predict that heparin may be useful after any clean laparotomy, and perhaps after a contaminated one.

There are other structures besides the peritoneum in which formation of fibrinous adhesions may be deleterious. These include joints, tendon sheaths, pleura, pericardium and the subarachnoid space. If heparin is found useful in the peritoneal cavity, it is conceivable that it may also be employed effectively in these other serous cavities.

CONCLUSIONS

After this very brief review of the recent literature, it will be seen that, while much work is being

done and some progress is being made, the problem still is not solved. A recent communication from Dr. Ochsner states it still is his opinion that the use of papain is the best solution to this problem, and a letter from Dr. Lehman suggests the idea that possibly heparin may be the best solution to this vexing problem.

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Discussion

Dr. Harry E. Pfeiffer, Cedar Rapids: There has been an unbelievable amount of literature and work done on the subject of adhesions for the last fifty years, and it would almost seem that it was out of proportion to the need, but the use of various materials have been eliminated. Without such elimination the very interesting work of the last twelve years would probably never have been accomplished for it has simmered down, as far as the introduction into the peritoneal cavity of foreign materials is concerned, to two enzymes or ferments and heparin in the way of prevention, and the use of amniotic fluid concentrates and amniotic membrane.

I say "out of proportion to its need" because in the vast amount of surgical diseases in which adhesions occur, either as a result of the disease or the necessary operative technic, only the occasional case demands surgical intervention and the vast majority are clinically well. However, it is for this very small percentage, in itself very critical, that efforts have been made to eliminate adhesions, because gastrointestinal physiology creates obstructive conditions which, if not relieved, spell invalidism or death.

Adhesions are Nature's method in the healing process and inevitably occur in bacterial peritonitis, and the process runs parallel to fibrous tissue formation any place. If it were not for beneficent and purposeful fibrous tissue formation, surgery could not be done because there would be no healing and the openings in hollow viscera would never heal. Theoretically, any liquid foreign material put in the abdominal cavity should prevent the healing of the wound in the wall the same as the formation of fibrous tissue elsewhere, but it is surprising that very little mention is made of the abdominal wound failing to heal. One makes the statement that it healed well and with no postoperative hernia. This might be due to the fact that the abdominal wound is uppermost.

Amniotic membrane, both as a suture material and to cover areas of peritoneum destroyed experimentally, is giving good results. Amniotic fluid or its concentrate which acts by retarding serum and by

lubrication likewise has seemed beneficial. Digestive ferments have been reduced experimentally to papain and trypsin, and more recently heparin. There seems to be more work done and better results being accomplished with papain than with trypsin. The use of papain and trypsin was abandoned, but recently it has been revived because of better preparations, the addition of synergists and proper dilution. Any satisfactory material or method to be accepted for clinical use has not yet been found, but some things have been established.

It is better to prevent than cure, and it is unnecessary to mention that mechanical measures are accepted as being most valuable in prevention. In addition to avoiding trauma, such as in crushing and tearing, the use of precise technic, hemostasis, a dry peritoneal cavity and peritonealization, I wish to emphasize plication of the bowel, avoiding large needles, excessive knotting, hard and too large suture material and the revival of the use of untreated silk. Some very interesting work was recently done in the use of suture material with the conclusion that there were fewer adhesions in the use of plain untreated soft pliable silk, purchased at a department store, than in prepared and waxed silk. These workers even stated that untreated silk will slowly absorb.

The essayist has cited the recent use of heparin. It approaches the problem from the aspect of preventing adhesions, in which little has ever before been accomplished. It acts by retarding coagulation of serum and fibrin formation while ferments digest after fibrin is formed. Papain is generally used in a 1:1000 solution in normal saline, but Parke, Davis and Company has furnished a solution of papain with sodium citrate which seems to synergize the action of papain and is being used experimentally. The following conclusions may be reached.

1. Papain (unless heparin excels and it is too early to know) gives us the most promise, but is to be reserved for those cases where no hollow viscera are opened. It has given consistently good results in a fairly large percentage of cases in preventing the reformation of adhesions which have been cut, but it gives no results in dissolving adhesions not cut, nor does it act in preventing adhesions. One author reports practically as good results with the use of castor oil soap and defibrinated rabbit's blood.

2. Heparin apparently accomplishes the same results and also prevents original formation, acting earlier in the process of formation of adhesions.

SPEAKERS BUREAU RADIO SCHEDULE

WSUI—Tuesdays at 8:00 p. m.

WOI—Wednesdays at 2:15 p. m.

August 6-7 Prenatal Care—W. C. Thatcher, M.D.
 August 13-14 Poliomyelitis—H. G. Decker, M.D.
 August 20-21 Hay Fever—H. M. Hurevitz, M.D.
 August 27-28 Is Your Child Ready for School?—
 A. M. Smythe, M.D.

SYMPTOMS AND DIAGNOSIS OF JOINT DISEASES*

KARL R. WERNDORFF, M.D., Council Bluffs

The diagnosis of joint diseases is based upon a profound knowledge of the normal anatomy and physiology of joints, muscles and nerves, and upon a thorough understanding of the laws of statics and mechanics. Anyone well equipped along these lines will have no difficulty in successfully approaching this rather complex problem. Because of that complexity the limited time of twenty minutes does not permit a complete analysis of the subject in question and I shall emphasize only a few points.

In the first place the examination must expose both the diseased and the normal extremity for comparison. The inspection of the diseased extremity alone will frequently offer a few diagnostic clues: the size, the shape and localization of a swelling, the atrophy or the enlargement, the shortening or lengthening of an extremity, or a faulty position of a joint. The second step of the examination should be taken methodically. The suspected area should be palpated to determine the consistency of the swelling previously observed by the inspection. The swelling may be a mere thickening of the tissues involved, fibrosis, ossification or a fluctuating fluid. The area should be tested in two perpendicular directions to avoid the impression of pseudofluctuation of a muscle tested in the direction of the muscle fibers. The temperature of the skin and the regional points of pain on pressure within the realm of the swelling must be confirmed. The functional examination must determine the excursions of the joint actively and passively, and on the lower extremities with and without weight bearing. Here, the utmost gentleness is required. To gain the patient's confidence it is advisable, especially in children, to test at first the normal extremity and then perform the necessary manipulations of the diseased joint very slowly and gently.

The diagnostic evaluation of the symptoms found by these three procedures will not be difficult if we remember the following facts. A swelling may be intra- or extra-articular. If intra-articular, it will follow the anatomic situation of the capsule of the joint. In the elbow tendon of the triceps in the ankle joint the tendo achillis will divide the swelling, presenting a very characteristic clinical picture. In the knee it will show the involvement of the upper recessus and ballotement of the patella. In the shoulder it will be very circumscribed, its distal margin being the ana-

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tomic neck of the humerus. In the hip, in an early stage, it will be found only with the patient in a prone position, face down. The posterior capsule of the hip joint does not cover the entire neck of the femur, leaving uncovered the lateral third of the neck in the shape of a triangle with its point at the greater trochanter. An intra-articular swelling of the hip joint will manifest itself within this triangle because the swollen and enlarged capsule will extend over that triangle. Here a comparison with the other side will secure an early diagnosis. Testing the temperature about the swelling will help to determine the inflammatory, subacute or chronic nature of the diseased joint. In contrast to the hot and red area of the acute inflammation, the subacute or chronic affliction will show a slight increase of the temperature of the skin noticeable only if compared simultaneously with the other side. A regional edema of the skin in the latter circumstances is pathognomonic for tuberculosis. Synovial tuberculosis in the early stages or circumscribed intra-articular osseous tuberculosis causes a local edema of the skin, which is not inflammatory, as I have proved by microscopic examination of skin excised for that purpose.

The condition of the muscles controlling the joint plays an important part in the pathologic picture of joint diseases, and is therefore of great diagnostic value. Rigid spasticity of a muscle group indicates the vulnerability of the joint. We find, for instance, the extensors and pronators of the foot visibly contracted in painful conditions of the Chopart and subastragaloid joints, the hamstrings in a painful knee joint, the biceps tendon in the elbow, the adductors and flexors in the hip joint, and the pectoralis major at the anterior and the latissimus dorsi at the posterior aspect of the shoulder joint.

On the other hand one will find atrophy of the muscles controlling a joint after a duration of more than three weeks. Very characteristic is the atrophy of the supra- and infraspinatus muscle in subacute or chronic afflictions of the shoulder joint, and the atrophy of the quadriceps muscle in the knee. The latter is frequently the ultimate cause of a knee disorder after the primary affliction has subsided. The quadriceps muscle is not strong enough to arrest the knee, and the capsule is relaxed and traumatized with every step the patient makes. This atrophy is a reflex manifestation. There is a correlation between the sensory nerve fibers of the synovial membrane and the trophic center in the segment of the spinal cord from which the sensory roots emanate, to supply the intra-articular nerves. This is the reason we find an atrophy three weeks after a trauma of a joint. This atrophy is not caused by inactivity, but is an

actual reflex degeneration of the muscle. The recognition of this fact is most important because faradization and massage of the quadriceps will cure a patient in a few weeks, who otherwise will suffer many months, if not years. The accentuated atrophy of muscles is characteristic of a tubercular involvement of the joint. It is a valuable symptom in the diagnosis of early synovial tuberculosis of the joints and pathognomonic, like the circumscribed atrophy of the bony constituents of the joint with synovial tuberculosis. It must be attributed to the direct damaging influence of the tubercular virus. In other words, both the muscular atrophy and bone atrophy in synovial tuberculosis are degenerative.

One of the most striking clinical manifestations of the involvement of a joint is its faulty position. As a matter of fact it dominates the clinical picture and calls for our therapeutic effort throughout the entire duration of the disease. It is the principal cause of functional disorders necessitating our attention long after the primary disease is cured. The cause of the contracture of a joint is a mechanical and physiologic one. An increase of the intra-articular fluid forces the joint in what is called the midposition. For instance, if one drills a hole through the patella and injects water into the knee joint, the knee will automatically rise to a slight degree of flexion, this being the midposition of the knee and offering the largest capacity with a relaxation of the ligaments incorporated with the capsule. The midposition of the elbow is slight flexion and pronation, midposition of the hip is flexion, abduction and external rotation and of the ankle, plantar flexion. The contracture of a joint however can be found without an increase of the intra-articular fluid. Any irritation of the intra-articular nerves supplying the synovial membrane, such as trauma or inflammation, causes a reflex spasm of the muscles controlling the joint. It is Nature's self defense which points to our therapeutic course of immobilization of the afflicted joint. It explains the well known so-called night cries of children suffering from beginning hip disease. During the day the spastic muscles immobilize the joint and the children are relatively protected, but at night the spasm disappears and the pain awakens the child.

Mechanical forces, of course, can augment or alter the contracture. The mere pressure of a blanket can increase a slight talipes position in the ankle. Weight bearing must increase a flexion contracture of the hip or the knee joint. In the hip joint it will change the primary position of abduction into adduction, if the slightest anatomic change takes place within the realm of the bony constituents of the joint. In all conditions where

the distance between the tip of the greater trochanter and the crest of the ileum is shortened, the pelvic trochanteric muscles become relatively longer and therefore weaker. They are not able to hold the pelvis and the entire body weight while the normal leg swings forward, and adduction is caused with every step the patient makes bearing weight on his diseased leg. The inefficiency of the pelvic trochanteric muscle can be absolute or relative. The absolute inefficiency explains the adduction contracture of a paretic or paralytic hip joint. The relative inefficiency causes the adduction in congenital or pathologic dislocation, in coxa vara and in all cases of chronic affliction of the hip joint where the cartilage of either the head of the femur or the acetabulum has disintegrated. The practical conclusion we can draw from this knowledge is that abduction of the hip joint indicates a synovial involvement, while the slightest adduction of the hip is pathognomonic for an intra-articular destruction, the nature of which one can determine by keeping in mind the points described previously.

The functional examination must analyze all possible excursions of the joint, actively and passively as to limitation in comparison with the other side. In addition the lower extremities and the spinal column must be tested under weight bearing. Here the fundamental knowledge of normal physiology and the laws of mechanics is essential to secure a proper clinical diagnosis. To illustrate that I shall mention two instances. The elevation of the arm is the result of the combined action of the supraspinatus and deltoid muscles. With an impaired supraspinatus muscle the patient cannot elevate his arm actively, but if the arm is lifted passively about 45 degrees, he can complete the elevation actively with the deltoid muscle to the normal range. The other example is that beginning synovial affliction of the hip joint very frequently offers one symptom only, a slight limitation of the hyperextension. The patient must be placed in a prone position, face down, and with one hand on the buttock. The extended knee is raised and compared with the other side to reveal the limitation of the hyperextension which sometimes amounts to not more than five degrees.

One of the most important diagnostic expedients is the analysis of pain. The objective study of pain must follow the fundamental principle to analyze the painful sensation into its various elements, its relation to location and intensity, its quality and its distribution. The following classification may prove helpful.

1. It is necessary to distinguish between superficial and deep-seated pain. An accentuated hyperesthesia of the skin without deep-seated pain

tested by palpation will suggest a neuropathic individual.

2. It may be stated that pain in joints, arthralgia, does not radiate as a rule. An exception to this rule is the sciatic radiation in chronic affections of the hip joint, of lumbar spinal articulation, of the sacroiliac and lumbosacral region or of the flat foot. They are examples of reflex pain and must be recognized as such because they will not disappear unless the proper treatment of the primary disease is rendered.

3. Pain of motion is caused by active and passive motion and is due to a traumatizing of the intra-articular nerves. Mere immobilization will remove that type of pain immediately.

4. The knee pain in coxalgia is a classical example of pain caused by pressure. The granulation tissue growing in the fossa acetabuli presses upon the obturator nerve and is responsible for this early symptom of a synovial involvement of the hip joint.

5. Pain of tension is characterized by the excessive increase of an intra-articular exudation which causes a terrific continuous pain by pressure from within the joint upon the intra-articular nerves, asking for arthrotomy, where immobilization must fail entirely.

6. In pain of weight bearing the mere immobilization of a destructed joint must fail unless it is applied in such a way that the entire extremity at the same time is suspended and does not bear any weight.

Summing up, we can say that we have at our disposal several significant symptoms which enable us to secure an early diagnosis of a joint disease.

STUDY OF SEROLOGIC TESTS FOR SYPHILIS

More than five years ago the Committee on Evaluation of Serodiagnostic Tests for Syphilis, in cooperation with the United States Public Health Service, conducted a study to evaluate original serologic tests for syphilis or modifications thereof in the United States.

Consideration is now being given by the Committee to the organization of a second evaluation study within the next year. Serologists who have an original serologic test for syphilis or an original modification thereof and who desire to participate in the second evaluation study should submit their applications not later than October 1, 1940. The applications must be accompanied by a complete description of the technic of the author's serologic test or modification. All correspondence should be directed to the Surgeon General, United States Public Health Service, Washington, D. C.

THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

CARCINOMA OF THE STOMACH ASSOCIATED WITH PERNICIOUS ANEMIA

A. B. NESLER, M.D., Dubuque

It is generally recognized that the increase in cancer deaths is due in part to the prolongation of life which has resulted from the application of scientific principles to the control of disease. Because medical science has prevented deaths in early life more people reach the age periods in which cancer is likely to occur. To the long list of diseases which have been effectively controlled, pernicious anemia has been recently added. Until fifteen years ago this disease was recognized as always being fatal, usually within three years after the onset of the symptoms. Since the advent of Minot and Murphy's¹ discovery of the effectiveness of liver in its treatment, countless lives have been definitely prolonged. Therefore, its victims must face other health hazards and since cancer usually occurs in patients over forty years of age, one of these hazards is cancer, which is most often encountered in the fourth and fifth decades of life. The case to be presented, one in which carcinoma of the stomach occurred four and one-half years after the diagnosis of pernicious anemia was first made, emphasizes this point.

CASE REPORT

The patient, a man forty-seven years of age, was first seen on June 15, 1927, when his chief complaint was weakness. On questioning, the patient also stated that his mouth was sore at times and that in the spring of the two previous years he had some numbness of his hands and feet. With the advent of warmer weather, the numbness had disappeared.

The physical examination was essentially negative except for pallor and a distinct, lemon-yellow tint to the skin and eyeballs. A routine blood examination showed 2,760,000 erythrocytes; 4,400 leukocytes and a hemoglobin of 68 per cent (Sahli). The differential count was 58 neutrophils, 2 basophils, 2 monocytes and 38 lymphocytes. No nucleated red cells or eosinophils were found. The erythrocytes varied considerably in size and shape and many of them were macrocytes. All were rich in hemoglobin. The icterus index was ten (normal four to six). A diagnosis of pernicious anemia was made. He was advised to go on the diet which had been recommended by Minot

and Murphy the year before. He did so and two weeks later reported that he felt "much better and stronger in every way." The blood examination then showed; erythrocytes 3,980,000; leukocytes 5,400; hemoglobin 78 per cent (Sahli).

Subsequently the blood picture improved until it was essentially normal. At the end of the year, liver extract, which was then available, was used to supplement the diet which had become monotonous. The patient felt well and continued to work for four years. He then began to complain of loss of weight and appetite, gastric discomfort and a sense of fullness after meals. At that time the blood examination was; erythrocytes, 3,240,000; leukocytes 6,000; hemoglobin 60 per cent (Sahli).

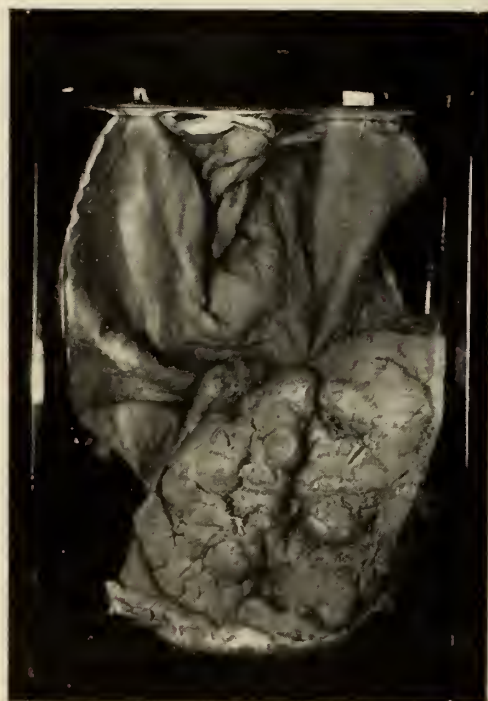


Fig. 1. Museum specimen showing polypoid carcinoma of the pyloric third of the stomach.

The red cells varied moderately in size but many of them showed some achromia. In spite of an increase in the amount of liver extract, the anemia increased and one month later the erythrocytes were 2,800,000 and the hemoglobin 50 per cent (Sahli). At that time gastric analysis showed the complete absence of hydrochloric acid and there was a strongly positive test for blood. An x-ray examination showed a large defect of the pyloric end of the stomach and a diagnosis of carcinoma was made.

The patient failed progressively and finally presented the cachexia of gastric carcinoma. On repeated blood examinations the picture was that of

severe secondary anemia, but a few macrocytes persisted.

Autopsy Abstract: The body was that of an emaciated man which externally showed only extreme pallor. The peritoneal cavity contained 250 cubic centimeters of clear straw-colored fluid. Except for moderate arteriosclerosis the only positive findings were a massive polypoid carcinoma involving the pyloric third of the stomach and a few neoplastic regional lymph nodes (Fig. 1).

Anatomic Diagnosis: Massive polypoid adenocarcinoma of the stomach with regional metastases; emaciation; arteriosclerosis, ascites.

Comment: According to present day conceptions, pernicious anemia is due to the lack of the intrinsic factor which is normally most abundant in the pyloric third of the stomach. Therefore, it may be theorized that in this case there was a change in the stomach resulting in the loss in the intrinsic factor at least four years before death. Later, and possibly due to the attempts of the gastric mucosa to regenerate, carcinoma developed and caused the death of the patient. Because of interference with the digestion and loss of blood from the neoplasm, the blood picture changed to that of secondary (achromic) anemia.

GENERAL DISCUSSION

In recent years a number of workers have reported the occasional association of gastric cancer with pernicious anemia, but the most comprehensive studies are those from the Mayo Clinic. Thus Giffin and Bowler² found only one case of carcinoma of the stomach in a series of 628 patients with pernicious anemia encountered at the clinic between 1917 and 1922. In a second series of 658 cases reported by Conner and Birkeland³ and observed from 1928 to 1930, there were four cases of gastric cancer (0.6 per cent). Washburn and Rozendaal⁴ studied 906 cases of pernicious anemia seen between 1931 and 1934 and found gastric cancer in sixteen cases (1.76 per cent). In addition they found eight cases with benign gastric polyps. In seven of eleven cases with gastric carcinoma, pernicious anemia had been diagnosed one to eight years before there was evidence of malignant growth. In their review of the literature they found reports of 64 cases in which gastric cancer and pernicious anemia coexisted. Thus with their series, 75 cases had been reported up to 1938. In 49 of the cases the gastric cancer developed during the course of pernicious anemia. From a comparison of their findings with those of Giffin and Bowler and of Conner and Birkeland they concluded that there was some evidence of the increasing frequency of gastric lesions in the course of pernicious anemia. In view of this fact,

it is obvious that the medical profession must be on the alert to detect such lesions in patients with pernicious anemia.

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OSLER PAINTING AVAILABLE

"Osler at Old Blockley," a painting in oil by Dean Cornwell, was unveiled at the dedication of the Osler Memorial Building on the grounds of the Philadelphia General Hospital this past June and was later exhibited at the American Medical Association convention in New York.



The painting depicts one of Osler's outstanding contributions to medicine, namely, bringing medical students to the bedside of the patient for clinical study. In the painting Osler is shown at the side of an elderly patient on the hospital grounds. Surrounding Osler and the patient are internes who have stopped with him as they were on their way to the autopsy house to observe one of his famous postmortem examinations. This autopsy house, now the only Osler Memorial Building in the United States, is shown in the background.

"Osler at Old Blockley" is the second painting in the series "Pioneers of American Medicine" sponsored by John Wyeth and Brother as part of a project to highlight the contributions of Americans to the advancement of medicine. "Beaumont and St. Martin" was the first painting in the series. Colored reproductions of "Osler at Old Blockley", sixteen by nineteen inches, suitable for framing, may be obtained free by addressing requests to THE JOURNAL OF THE IOWA STATE MEDICAL SOCIETY, 505 Bankers Trust Building, Des Moines, Iowa.

STATE DEPARTMENT OF HEALTH

Nathan L. Biering

DYSENTERY, DIARRHEA AND ENTERITIS

Diarrhea-Dysentery Deaths

From year to year in Iowa, many deaths result from intestinal disorders classed as dysentery, diarrhea and enteritis. Figures in the following table show how many fatalities occurred among Iowa persons in 1936, 1937, 1938 and 1939, due to the causes mentioned:

Year	Amebic Dysen- tery	Bacillary Dysen- tery	Diarrhea and Enteritis		Unspec- ified	Total
			Under 2	Over 2		
1936.....	3	17	137	113	10	280
1937.....	0	8	104	69	16	197
1938.....	2	7	92	94	9	204
1939.....	0	1	66	74	18	159
Totals....	5	33	399	350	53	840
Four year Average...	1.25	8.25	99.75	87.50	13.25	210

It will be noted that deaths caused by diarrhea and enteritis among children under two years of age and among persons older than two years (involving mostly the elderly or aged) greatly outnumber the deaths which are attributed specifically to bacillary dysentery.

Accurate Diagnosis Depends on Laboratory

The term "diarrhea and enteritis," while describing satisfactorily the clinical pathology, does not reveal the etiologic nature of illness. Reliance must be placed on the laboratory and on the examination of fecal specimens from the patient as the only means of determining whether illness is due to infection and, if so, whether the inciting agent proves to be one or other of the strains of *Bacillus dysenteriae*. Evidence indicates that if the laboratory were permitted, whenever practicable, to make its contribution to accurate diagnosis, many of the cases of epidemic diarrhea would be shown to be due to bacillary dysentery instead of simply to diarrhea and enteritis.

Epidemic Diarrhea Reportable Along with Dysentery

The Iowa State Board of Health, advisory body to the Iowa State Department of Health, has de-

clared epidemic diarrhea a reportable disease in the same category with dysentery (amebic and bacillary). The Department enlists the support of attending physicians in the reporting of cases and outbreaks of epidemic diarrhea and dysentery.

ROCKY MOUNTAIN SPOTTED FEVER IN IOWA IN 1940

Four cases of Rocky Mountain spotted fever were reported in Iowa during the first six months of 1940; one each from Marshall, Tama, Wapello and Warren counties. The two cases occurring in Marshall and Warren counties represent the first reports of the disease from these localities.

Following is a brief summary of the cases:

Case 1. E. W., Indian female, thirty-eight years of age, seen by I. D. Nelson, M.D., medical director of the Sac and Fox Sanitarium. She became ill during the latter part of May with generalized aching, fever and macular rash which gradually became petechial in character. The Weil-Felix agglutination test examined on June 14 was positive in dilution of 1:2560. There was a history of tick bite one week before onset of illness.

Case 2. J. V., male, five years of age, living eighteen miles northwest of Marshalltown, was seen by W. P. Marble, M.D., of Marshalltown, during the early part of June. The child became ill on June 5, approximately ten days after exposure to a wood tick (*Dermacentor variabilis*). The onset was sudden with severe headache, fever and generalized aching. A macular rash began on the wrists and elbows on June 12, and soon became generalized. The Weil-Felix test was positive, 1:320, on June 14. This patient died on June 30.

Case 3. The third case was reported by E. E. Shaw, M.D., of Indianola, in a male, F. H., four years of age, who became ill on June 21 and gave a history of tick bite on June 14. A macular, petechial rash occurred June 23. A Weil-Felix agglutination test taken on June 30 was positive in a dilution of 1:320.

Case 4. The patient, W. O., a farmer, R. R.

No. 2, Ottumwa, fifty-nine years of age, reported by F. A. Hecker, M.D., of Ottumwa, became ill June 23 while making hay. He entered the hospital on July 1 with macular petechial rash which had begun on ankles and feet and had become generalized by the time of admittance. While in the hospital there was a marked hyperesthesia with increased knee reflexes and a positive Kernig's sign. The temperature ranged from 99 to 103 degrees. The Weil-Felix test on July 6 was positive in a dilution of 1:640.

Decrease in Cases for 1940

The four cases reported thus far in 1940 present a considerable decrease in number compared to the sixteen reported for the same period in 1939. The mortality rate for the first six months of 1940 was 25 per cent, one of four patients dying. This is slightly above the rate of 22 per cent recorded for 1939.

In addition to the four cases presented above, two were seen by F. J. Condon, M.D., medical director, District Health Service No. 2, Center-ville. Their infection, however, was not acquired in Iowa, exposure to the common dog tick having occurred in Missouri.

TYPHOID FEVER CARRIERS DISCOVERED
IN 1940

As a result of field investigations of the State Department of Health and efforts of attending physicians, five typhoid fever carriers have been brought under control in Iowa thus far in 1940. In each instance an active case of the disease led to the suspicion of a carrier among the close con-tacts.

In one instance, a farmer transmitted the dis-ease to two hired girls during the latter part of 1939 and the early part of 1940. At least six other cases can be traced to him. Another carrier was responsible for typhoid fever in his daughter about three weeks after he started preparing meals dur-ing his wife's absence. A third was the source of her husband's recent illness. An aunt of a small boy was found to be the source of his infection. In one Iowa town several cases of typhoid fever were reported during the last two years. An in-vestigation proved a neighbor was harboring ty-phoid organisms.

Whenever typhoid fever occurs, a careful sur-vey of the familial and other close contacts should be made for a past history of this disease in view of the finding of a possible carrier. Investigations of typhoid fever have shown in recent years that almost every case can be traced to a carrier or an active case.

With the appearance of the warm summer months, a sharp rise is expected in the number of reported cases of typhoid fever. The accompany-ing graph shows the seasonal incidence of typhoid compared with the nine-year average.



According to the nine-year average (1930-1938), over twice as many cases (66) have been reported for the three-months period, July 1 to October 1, as have been reported (24) for the six-months period, January 1 to July 1. Particular attention should, therefore, be directed toward the identification of carriers during the coming three months.

PREVALENCE OF DISEASE

	June '40	May '40	June '39	Most Cases Reported from
Diphtheria	19	16	18	For the State
Scarlet Fever	103	224	144	Cerro Gordo, Polk, Scott
Typhoid Fever	7	3	11	For the State
Smallpox	32	39	54	Muscatine, Pottawattamie, Washington, Polk
Measles	487	1174	511	Linn, Dubuque, Story, Polk, Webster
Whooping Cough	126	149	131	Dubuque, Johnson, Pottawattamie
Chickenpox	114	221	139	Woodbury, Marshall, Linn
Meningitis	2	2	0	Jasper, Shelby
Mumps	233	363	111	Black Hawk, Linn, Floyd, Woodbury
Pneumonia	84	127	29	For the State
Poliomyelitis	5	2	0	Black Hawk, Bremer, Fayette, Union, Woodbury
Tuberculosis,				
Pulmonary	73	19	50	For the State
Undulant Fever	25	16	38	For the State
Gonorrhea	111	130	163	For the State
Syphilis	168	198	242	For the State

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RESUMÉ OF THE NEW YORK SESSION

Those of our readers fortunate enough to have been in attendance at the Ninety-first Annual Session of the American Medical Association, held in New York City, June 10 to 14, need not be told about this greatest of all meetings in the history of annual sessions. However, for the benefit of those unable to go, a brief summary of some of the more outstanding happenings may be of interest.

In the first place this session was the largest ever held. The registration of 12,864 physicians excelled by some 2,500 the largest number ever recorded at any previous session. The disadvantage of no meeting place equipped to house the entire session under one roof was more than offset by the other attractions New York has to offer. The cool interior of the Waldorf-Astoria Hotel was in marked contrast to the unpleasant heat of the Grand Central Palace where the technical and scientific exhibits were held. Nevertheless, from early morning until closing time, aisles were crowded on all four floors with physicians passing from one to another of this gigantic display of exhibits. Again Iowa has reason to be proud of its contribution to this phase of the program. The exhibits of Iowa physicians are described elsewhere in this issue.

The selection of Dr. Frank H. Lahey of Boston as president elect assures continuation in this highest office of American medicine another of the nation's outstanding physicians. Dr. Lahey is perhaps best known in the country and abroad as the head of the Lahey Clinic. Not only is he an extremely able surgeon, but he is also the possessor of a dynamic personality. The Association is indeed fortunate to have a man of his ability at

its head during the difficult time in history through which it is passing.

Whenever threat of war appears on the horizon and it becomes necessary to consider defense measures, medical preparation is at once of first importance. The prompt action taken by the House of Delegates to assure efficient preparedness of the medical profession in event of aggression is to be commended, and should further be remarked upon as denoting the willingness of organized medicine to cooperate to the fullest extent with the federal government whenever its services are needed. Colonel G. C. Dunham of the United States Army Medical Corps announced a tentative plan to the House, prepared by the office of the Surgeon General of the Army for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency. The proposed plan includes a survey of the medical profession through its state and county units and the maintenance of a numerical roster of availability by the American Medical Association; the War Department can then call upon the American Medical Association for physicians or specialists as and when required. The action taken by the delegates was the authorization of the Speaker of the House to appoint a Committee on Medical Preparedness to consist of ten members from the House plus certain officers of the Association. The personnel of this Committee as appointed by the Speaker is as follows:

Dr. Irvin Abell, Louisville, Kentucky, Chairman.

Dr. Charles A. Dukes, Oakland, California.

Dr. Roy W. Fouts, Omaha, Nebraska.

Dr. Stanley H. Osborn, Hartford, Connecticut.

Dr. John H. O'Shea, Spokane, Washington.

Dr. James E. Paullin, Atlanta, Georgia.

Dr. Walter G. Phippen, Salem, Massachusetts.

Dr. Harvey B. Stone, Baltimore, Maryland.

Dr. Fred W. Rankin, Lexington, Kentucky.

Dr. Samuel E. Thompson, Kerryville, Texas.

Ex Officio

Dr. Arthur W. Booth, Elmira, New York, Chairman of the Board of Trustees.

*Dr. Austin A. Hayden, Chicago, Illinois, Secretary of the Board of Trustees.

Dr. Nathan B. Van Etten, New York, President of the American Medical Association.

Dr. Olin West, Chicago, Illinois, Secretary of the American Medical Association.

Dr. Morris Fishbein, Chicago, Illinois, Editor of the *Journal of the American Medical Association*.

*Deceased July 10, 1940.

The *Journal of the American Medical Association* has inaugurated a section in which each week "will appear official notes by the Committee on Medical Preparedness, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other government agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession." As we go to press word comes of the appointment of Dr. Thomas F. Suchomel of Cedar Rapids as state representative of the Committee on Medical Preparedness of the American Medical Association.

Two other matters of general interest to physicians were acted upon by the House of Delegates. In response to the report by the Board of Trustees that the Supreme Court of the United States had denied the petition of the Association for a writ of certiorari, and that the Association must now stand trial in the United States District Court for the District of Columbia, the Reference Committee stated that the "determination on the part of the Board of Trustees to use every effort and means to defend the American Medical Association against the charges that it is guilty of conspiracy and of violating federal antitrust laws," should receive the wholehearted endorsement of the House of Delegates. It was further announced that the trial was scheduled to begin on June 14, but up to the present date we have seen no reference in the daily press or elsewhere that such was the case.

The other matter concerned the present status of the Wagner-George Hospital Bill, S. 3230, which passed the Senate on May 30, and is now pending before the House Committee on Interstate and Foreign Commerce. While approving the general purpose of the bill, nevertheless, the House of Delegates felt that as it passed the Senate it contained four objectional features.

1. Definition of the term hospital in the bill should be modified to exclude health, diagnostic and treatment centers.
2. All projects to be constructed under the bill should be subject to the approval of the contemplated National Advisory Hospital Council.
3. Reference to osteopathic representation on the proposed council should be eliminated.
4. The method of selecting members of the proposed council should be modified to permit their appointment by the President.

Finally, and without further comment we end this resumé by quoting a paragraph of pertinent questions which President Elect Nathan B. Van Etten posed for each delegate in his address: "Does your state need more hospitals in new locations? Does your state need more beds in exist-

ing hospitals? Does your state need more laboratories? Does your state need more ambulances? Does your state need and can it support more doctors? Does your state need more specialists? Does your state need more public health nurses? Does your state need more welfare workers? Does the health program in your state need financial help through federal agencies from the general tax pool? Have you read the Wagner health bill, S. 1620? Have you read the Mead Bill? Have you read the Pfeiffer bill? Have you read the modified Wagner-George bill? Have you studied the President's plan? Do you know the American Medical Association's platform by heart? And do you understand its implications? Do you know Surgeon General Parran's plan for a crusade against syphilis? Have you thought about the possible effect of governmental interference on your own private practice? Does the medical service in your state serve your citizens adequately?"

MASSIVE HEMORRHAGE FROM PEPTIC ULCER

That the treatment of massive hemorrhage from peptic ulcer is still a difficult and controversial subject is indicated by an article by Kirsner and Palmer* of Chicago. These authors review the experience at Billings Hospital over a ten year period. There were 2,150 patients with a diagnosis of gastric, duodenal or anastomotic ulcer; massive hemorrhage occurred in 230 or 10.6 per cent. The ratio of occurrence of hemorrhage in duodenal, gastric and anastomotic ulcer was 10:1:2. The proportion of males to females was 3.75:1.0. The greatest incidence occurred between thirty and fifty years of age. Severe hemorrhage associated with shock occurred in 53.5 per cent of the cases. Five deaths were attributed to exsanguination and three deaths to complications of hemorrhage. The total mortality rate for the entire series was 3.47 per cent.

The treatment of massive hemorrhage is generally conceded to be medical. The rôle of surgery is controversial. Absolute bed rest and reassurance, accompanied by good nursing care and the judicious use of narcotics, are the fundamental principles of successful therapy. Morphine, grains one-sixth to one-fourth, together with atropine, grains 1/150 to 1/100, hypodermically, every four hours if necessary, are the most useful drugs available. They allay restlessness, diminish gastric motility and inhibit gastric secretion.

In the opinion of these authors treatment with milk and cream and alkalies should be started im-

*Kirsner, Joseph B., and Palmer, Walter L.: The treatment of massive hemorrhage from peptic ulcer. *New Internat. Clin.*, Vol. IV, New Series 2:105 (December) 1939.

mediately, although this is not always possible because of persistent nausea and vomiting. Calcium carbonate in 2.0 or 4.0 gram doses was found to be the most efficient neutralizer of gastric acidity. The intravenous administration of fluids is absolutely contraindicated, although the subcutaneous administration is at times helpful to combat dehydration and the alkalosis which occasionally results from alkali therapy. In the judgment of these clinicians, blood transfusions are highly valuable in the treatment of massive gastric hemorrhage to combat shock and exsanguination. If given slowly at the rate of eight cubic centimeters per minute, there is no danger from the use of 500 to 600 cubic centimeters of blood. Transfusion is indicated when the red blood count falls below 3,000,000, when the systolic blood pressure falls below 100 and when the pulse rate is over 120.

Surgical intervention is an extremely controversial subject. Only one patient was operated upon for hemorrhage and a fatality resulted. In the hands of Finsterer, the surgical mortality rate was over five per cent, and in a representative collection of statistics from less experienced surgeons, the mortality rate was 28 per cent. Even prophylactic surgical intervention after recovery from hemorrhage does not always prevent recurrence. Judging from the experience at Billings Hospital, the conservative medical management of massive hemorrhage from peptic ulcer is the treatment of choice.

COMMITTEE ON CHILD HEALTH AND PROTECTION ACTIVE

Insofar as possible the JOURNAL has attempted to keep its readers informed of the major activities in which the Society's various committees engage themselves. We wish we were able to publish all the work of all the committees, for we have just a trace of suspicion that the rank and file of the membership are not sufficiently cognizant, and perhaps not always quite as appreciative as they should be of the sacrifice which is made in time and effort by many of these committee members to keep the work of the Society up to a standard and abreast of the trends of the times in the various fields of medical endeavor.

In this particular editorial we wish to call attention to the program now being developed by the Committee on Child Health and Protection, which seems to us to be especially deserving of mention as an example of fine cooperation in a valuable program. Under the date of July 9 this Committee released an announcement that in cooperation

with the State Department of Health and the State University of Iowa, College of Medicine, it had arranged for a three-day postgraduate course on the care of the newborn and prematurely born child, to be held at the University Hospital, Iowa City, on September 17, 18 and 19. The tentative program as arranged to date appears at the close of this editorial.

The course will be limited to seventy-five physicians, which is the maximum number the Committee feels can be advantageously accommodated. Every effort has been made to keep the expense for those who attend at a minimum. Sleeping accommodations can be obtained at the Law Commons at the rate of one dollar per night, and meals will be available at one of the University men's dormitories near the hospital. The enrollment fee of five dollars will partially cover expenses and entitle the physician to receive a copy of mimeographed abstracts of the lectures and demonstrations. The Committee states that enrollment for the course is open to the profession at large, that applications will be accepted in order of receipt, but that the maximum will not be exceeded. All those interested should write immediately to the Speakers Bureau, Iowa State Medical Society, 505 Bankers Trust Building, Des Moines, Iowa. No applications will be accepted after September 10.

Your editor does not feel that a program of this caliber needs any selling. The opportunity for fellowship, entertainment and information which this three-day course offers, speaks for itself. Your Committee has arranged a veritable feast at your very doorstep. Their efforts deserve your appreciation.

Care of the Newborn and Prematurely Born Child Tuesday, September 17

A. M.

- 9:00-10:00 Registration—University Hospital
- 10:00-11:00 Demonstration of Hospital Routine Care of the Newborn, Department of Obstetrics
- 11:00-12:00 The Premature Child—Dr. Julius H. Hess, Chicago

P. M.

- 2:00- 2:45 Asphyxia of the Newborn—Department of Anesthesia
- 2:45- 3:45 Nutrition of the Newborn—Department of Pediatrics
- 3:45- 4:45 The Premature Child—Dr. Julius H. Hess, Chicago
- 4:45- 5:30 Otolaryngologic Conditions in the Newborn—Department of Otolaryngology
- 7:30 p. m.—Talk—Dr. Edward N. Anderson, Football coach—Football movies

Wednesday, September 18**A. M.**

- 9:00-10:00 Demonstration of Examination of the Newborn—Department of Pediatrics
- 10:00-10:30 Demonstration of Radiologic Diagnosis in the Newborn—Department of Radiology
- 10:30-11:00 Erythroblastosis—Department of Medicine
- 11:00-12:00 Behavior of the Young Child—Dr. Horton Casparis, Nashville

P. M.

- 2:00- 3:00 Orthopedic Conditions in the Newborn—Department of Orthopedics
- 3:00- 4:00 Principles of Infant Feeding—Dr. Horton Casparis, Nashville
- 4:00- 4:30 The Causes of Death in Young Infants—Department of Pathology
- 4:30- 5:00 Vitamin K in the Newborn—Department of Pathology
- 7:30 p. m.—Motion Pictures "On Iowa," new University films and others

Thursday, September 19**A. M.**

- 9:00-10:00 Demonstration of Formula Making—Department of Nutrition
- 10:00-10:30 Eye Diseases of the Newborn—Department of Ophthalmology
- 10:30-11:00 Skin Lesions of the Newborn—Department of Dermatology
- 11:00-12:00 Diseases of the Newborn—Dr. Irvine McQuarrie, Minneapolis

P. M.

- 2:00- 2:30 Circumcision and Dorsal Slit—Department of Obstetrics
- 2:30- 3:00 Genito-urinary Conditions of the Newborn—Department of Urology
- 3:00- 4:00 Diseases of the Newborn—Dr. Irvine McQuarrie, Minneapolis
- 4:00- 5:00 Syphilis of the Newborn—Department of Obstetrics, Public Health, Radiology and Pediatrics

THE CURE OF GONORRHEA

An emphatic note of warning over too much enthusiasm for the sulfanilamide therapy of gonorrhea is expressed by no less an authority than Pelouze* of Philadelphia. In the treatment of the individual patient the physician must be impressed with his obligation to society as well as that to his patient. Bacterial cure is more important than the relief of objective symptoms from a sociologic and public health point of view.

According to this authority an accurate estimate of the efficacy of sulfanilamide in gonorrhea is not possible at this time. Although some authors

report 80 per cent cures with chemotherapy, a conservative estimate of 40 per cent is probably more accurate. If the objective symptoms of the disease are not relieved after five days of treatment, the drug should be discontinued. If the symptoms are relieved, therapy should continue for another week or ten days. Pelouze also emphasizes that the older methods of determining a cure are absolutely unreliable in the sulfanilamide treated case. Repeated negative cultures are the only criteria of cure, and even these are not infallible.

The hazard of the drug therapy is the relief of objective symptoms although gonococci persist in the urogenital tract. Gonococci have been demonstrated by culture as late as two, three or four months after the disease was apparently clinically cured. Such a male patient becomes a carrier, transmits it to the female, who in turn becomes a carrier without objective symptoms. Males subsequently infected by female carriers, however, are in no way asymptomatic. The social and public health implications of such a vicious cycle are tremendous.

In the management of the complications of gonorrhea, sulfanilamide frequently produces dramatic results. Sulfapyridine is reported to be almost twice as efficacious as sulfanilamide in the treatment of the disease, but in the use of either drug the determination of a real cure is difficult and uncertain.

IOWA EXHIBITS AT THE NEW YORK SESSION

To the Editor of the JOURNAL:

Those who attended the New York session of the American Medical Association must have felt a justifiable pride in the exhibits from our University Medical School. When we recalled that last year at the St. Louis session the gold medal was awarded to Drs. E. L. DeGowin, J. E. Harris and E. D. Plass of the University of Iowa for the exhibit upon the preservation of blood, interest in this year's exhibits was enhanced. There were three exhibits from our University Hospital at the recent meeting in New York.

Drs. E. D. Plass and Ray E. Trussell, of the Department of Obstetrics and Gynecology, presented an exhibit on *Trichomonas Vaginalis* in the Section of Obstetrics and Gynecology. Dr. Plass and Dr. Trussell isolated and cultured for the first time a bacteria-free strain of a human trichomonas. The pure culture of this organism has been maintained for more than twelve months. Its ability to produce human vaginitis was demonstrated without the intervention of hemolytic streptococci or other common pathogenic bacteria

*Pelouze, P. S.: Gonorrhea as a disease and as a therapeutic problem. *New Internat. Clin.*, Vol. I, New Series 3:89 (March) 1940.

which have been incriminated in the past. An extensive series of animal inoculations at the Veterinary Research Institute at Iowa State College failed to indicate that lower animals, including cattle, might be a source of human infection. A study of the requirements of the organism, has demonstrated it grows best under anaerobic conditions in an acid medium containing carbohydrates.

Dr. Arthur Steindler and Dr. Carl Ruhlin, of the Orthopedic Surgery Department, presented part of a special exhibit on "Lame Backs." Their exhibit dealt especially with low back pain, emphasizing sciatic radiation of pain. Certain well established lesions of the spine, e. g., arthritis, spondylolisthesis, intraspinal tumors and herniation of the intervertebral discs, produce this type of pain, as do certain less generally recognized conditions, such as the gluteus maximus syndrome. In the latter type of condition, in which there is involvement of the fascias, the "novocaine test" is positive. This was demonstrated to be of importance both in diagnosis and treatment. Eighty-four per cent of the patients giving a positive test benefited by immobilization, while only twenty per cent of those with a negative test were improved by similar treatment.

Dr. P. J. Leinfelder, of the Department of Ophthalmology, presented an exhibit entitled "Ophthalmologic Neuro-anatomy" in cooperation with Mr. Lee Allen, staff artist of the ophthalmology department. The exhibit consisted of a series of colored stereoscopic drawings which clearly demonstrated the anatomy of optic and oculomotor pathways, and their relation to the vascular system of the base of the brain. The nuclear connections of these pathways in the brain stem were illustrated also. Those interested in ophthalmology and neurology should avail themselves of the opportunity to study these splendid stereoscopic drawings by Dr. Leinfelder and Mr. Allen. We understand they can be seen in the Department of Ophthalmology at the University Hospital. The remarkable character of this exhibit was shown by two oft repeated questions made by visitors to the booth in New York. The questions put to Dr. Leinfelder and Mr. Allen were: "How did you do it?" and "Will these drawings be for sale?"

The profession of Iowa should be proud of the outstanding work being done at the State University of Iowa Medical School. These exhibits placed us well up in the top flights in New York.

Arthur D. Woods, M.D.

State Center, Iowa
June 26, 1940

PHYSICIANS NEEDED FOR ARMY SERVICE

The physician, like every other American, has become actively interested in our national security and stands ready to contribute his services as required for military preparedness.

The immediate problem in this connection is one that concerns the War Department, and primarily the young physician. The War Department must procure sufficient additional personnel from the medical profession to augment the medical services of the regular army as the various increases are made in the strength of the regular army. The young physician is especially concerned because it is usually advantageous, and is often more convenient for him to serve with the Army.

Present plans of the War Department are designed to make service attractive and instructive for the young physician. If the physician holds a Medical Corps Reserve commission he can be ordered to active duty if he so requests. If he does not hold a commission, but is under thirty-five years of age and is a comparatively recent graduate of an accredited school, he may secure an appointment in the Medical Corps Reserve for the purpose of obtaining extended active duty for a period of one year or longer. After serving six months of active duty in the continental United States, a reserve officer may request duty in Hawaii, Panama, or other United States territories and possessions. He may also receive yearly extensions of active duty for an indefinite number of years until the international situation is clarified, and until the future can be viewed with more certainty.

Pay is according to rank, and, including subsistence and quarters allowance for an officer with dependents, amounts to an annual sum of \$3,905 for a captain and \$3,152 for a first lieutenant. Further information may be obtained by writing The Surgeon General, United States Army, Washington, D. C.

GRADUATE COURSE IN ELECTRO-CARDIOGRAPHY

A full-time extensive graduate course in electrocardiography will be presented by the cardiovascular department of Michael Reese Hospital in Chicago from August 19 to August 31, 1940, under the directorship of Dr. Louis N. Katz. The course is offered particularly to the general practitioner, and special lectures will be given for both the beginning and advanced student in electrocardiography. There will be practice on several electrocardiographic machines and discussion of the principles of their construction and use.

Because group and individual instruction will be stressed, the class will be limited in number. Those wishing to take advantage of this postgraduate study are urged to make their reservations early. Additional information may be secured from the Michael Reese Hospital, Twenty-ninth and Ellis Avenue, Chicago, Illinois.

WOMAN'S AUXILIARY NEWS

MRS. H. I. MCPHERRIN, *Chairman of Press and Publicity Committee*
5822 North Waterbury Road, Des Moines

President—MRS. ELBERT T. WARREN, Stuart

President Elect—MRS. W. R. HORNADAY, Des Moines

Secretary—MRS. FRED MOORE, Des Moines

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

REPORT OF THE NATIONAL MEETING

The Eighteenth Annual Session of the Woman's Auxiliary to the American Medical Association held recently in New York City was most interesting and entertaining.

Our meetings were held in the luxurious ballroom of Hotel Pennsylvania, where the management and the New York State Auxiliaries exerted every effort for the comfort and pleasure of the approximate 1,200 in attendance, carrying out their slogan of "Back Home" friendliness.

Our luncheons, teas and dinners held at the Waldorf-Astoria and Pennsylvania Hotels were attractively arranged and well attended, and an inspiration to form friendships and acquire ideas from members in the United States and its neighbors.

Mrs. Rollo K. Packard, Chicago, national president, presided at the meetings and in her address paid tribute to the women of the early period for their vision. Many have carried on actively to the present time. At the annual luncheon in her honor, Dr. Nathan B. Van Etten of New York, president of the American Medical Association, brought greetings from that organization. He stressed the need for the Auxiliaries and lauded them for their cooperation and effort. Excerpts from both of these addresses will be found on this page. Salvatore Trivizo, tenor, assisted by Waldine Russel at the piano, rendered several delightful selections.

Some accomplishments of Auxiliaries during the year are as follows. The Woman's Auxiliary to the Ohio State Medical Association was organized May 15, 1940. The highest honor was conferred on Iowa in the essay contests, on Pennsylvania in the largest number of members and on Texas in the largest number of counties organized. Mrs. V. E. Holcombe of Charleston, West Virginia, was installed as president.

With New York's many attractions, members and guests were furnished strips of tickets covering several excursions at group rates to be used at their convenience during the week. An outstanding incident of our group was the observation from the Empire State Building of the launching of the Battleship North Carolina.

Mrs. F. W. Mulsow, Cedar Rapids, Delegate

PERTINENT PARAGRAPHS

From Mrs. Holcombe's address: "The history of an organization if it is to be a record of forward movements and high achievements depends on three factors; the ideals embodied in the purpose of the organization; the efficient, consecrated efforts of its leaders and members in the promotion of its plans and loyalty to its policies; and the ability to meet the exigencies of the times in its benefactions."

"We do not propose to institute a spectacular program, but we do propose to develop a program according to the needs that arise, the tenor of which is now, as always, self-instruction in matters pertaining to individual and public health, so that we may become instruments in the transmission of this knowledge to the laity. In each community the Auxiliary through its Advisory Council should cooperate with its local medical society on the problems of local interest which might include any of the health problems in a long list."

"The years of serious endeavors, the straightforward facing of ever changing conditions, the understanding of the importance of health and the difficulties in the professional field, and now the war, have brought to the members of this organization a conviction that the work of the organization, if it is to go forward, must be done in a spirit of 'service to humanity'. All selfish ambitions must be set aside; idealism becomes realism; and each phase of the Auxiliary's activities more closely correlated."

From Dr. Van Etten's address: "I seriously look to the Women's Auxiliary of the American Medical Association to change the manner of the care of those who are really public dependents, and spread this load over the community so that no doctor is exploited by so-called welfare organizations."

"I believe that the quality of your membership is such that you may be able to influence women's organizations of all kinds in a beneficial way for the service of the community and the promotion of the public health. I believe that you can materially influence health statistics in the next decade. The effect of your work upon your special educational projects is sure to be felt. I am convinced that the place for this work is the small community, and that the sum of such efforts will change the national picture."

SOCIETY PROCEEDINGS

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held at the Fortner Hotel in Waverly, Monday, June 24. Following the six-thirty dinner H. Dabney Kerr, M.D., of the State University of Iowa, College of Medicine, Iowa City, presented an illustrated lecture on The Present Status of Radiotherapy.

P. K. Graening, M.D., Secretary

Buchanan County

Albert M. Snell, M.D., of the Mayo Clinic, Rochester, Minnesota, was the guest speaker for the Sixth Annual Golf and Scientific Program of the Buchanan County Medical Society, held at the Wapsipinicon Golf Club in Independence, Thursday, June 20. Following an afternoon of golf, and dinner at six-thirty, Dr. Snell addressed the group on Some Problems Presented by the Jaundiced Patient.

Dallas-Guthrie Society

The regular meeting of the Dallas-Guthrie Medical Society was held at the State Hospital for Epileptics and School for the Feeble-minded at Woodward, on Thursday, July 18. Dinner was served at twelve-thirty after which the scientific program was presented by members of the hospital staff.

S. J. Brown, M.D., Secretary

Hamilton County

Forrest J. Austin, M.D., of the State Department of Health, Fort Dodge, led a discussion of public health problems when the Hamilton County Medical Society met in Webster City, Friday, July 5.

Hardin County

The regular monthly meeting of the Hardin County Medical Society was held at the Stevens Hotel in Iowa Falls, Tuesday, June 25, with John H. Matheson, M.D., of Des Moines, presenting an informal discussion on Common Diseases of the Eye.

W. E. Marsh, M.D., Secretary

Jackson County

Two members of the faculty of the State University of Iowa, College of Medicine, Iowa City, furnished the scientific program for the Jackson County Medical Society at a meeting held Thursday, June 27. Dinner was served at twelve-thirty at the Hotel Weck in Bellevue, after which the group motored to the Bellevue State Park, where the following presentations were made:

The Diagnosis and Treatment of Cardiac Arrhythmias, Horace M. Korn, M.D.; and The Modern Treatment of Anemias, Willis M. Fowler, M.D.

Tama County

Motion picture films on Cardiac Irregularities were shown for members of the Tama County Medical Society at the meeting held in Toledo, Thursday, June 27. Dr. Clinton E. Harris of Grinnell was a guest of the society and spoke briefly on the post-graduate course which will be held in Grinnell during the month of October.

Warren County

Bernard C. Barnes, M.D., of Des Moines, spoke on The Future of Medicine, for the Warren County Medical Society, at Indianola, Tuesday, June 11. Wives of the members were invited guests of the occasion.

PERSONAL MENTION

Drs. Loran M. Martin, H. C. Kluever and Charles H. Coughlan announce the formation of a partnership in the practice of diseases of the eye, ear, nose and throat and head surgery, at 711 Carver Building in Fort Dodge. Dr. Coughlan was graduated in 1931 from the State University of Iowa, College of Medicine, and served his internship at the University Hospital. For the past seven years he has been associated with the staff of the pathology department, the ear, nose and throat department, and the eye department of the University.

Dr. Stuart C. Cullen, head of the division of anesthesia, State University of Iowa, College of Medicine, has been appointed to the editorial board of *Anesthesiology*, a new publication which was to make its appearance during the month of July.

Dr. Addison W. Brown of Des Moines addressed the general meeting of the Women's Department in Lamoni, Friday, June 28, presenting an illustrated lecture on "Cancer".

Dr. Joseph E. Flynn, who was graduated in 1938 from the State University of Iowa, College of Medicine, has become associated with Dr. George H. Scanlon in Iowa City in the private practice of medicine. Dr. Flynn served his internship at Cincinnati

General Hospital, and has been associated with the department of pathology at the University Hospital in Iowa City for the past year.

Dr. Allen W. Byrnes of Guthrie Center, formerly of Traer, has accepted an appointment as associate medical officer with the United States Veterans Administration, and gone to Minneapolis where he will receive additional instruction for the next three or four months.

Dr. George H. Bassett of Sac City addressed the local Kiwanis Club, Monday, June 10, on "Socialized Medicine".

Dr. Edwin N. Hesbacher has resigned as director of the Polk County Health Unit, Des Moines, and accepted an appointment as assistant surgeon at the Marine Hospital in Detroit, Michigan. Dr. Lindsay J. Ervin, who was graduated in 1937 from Rush Medical College, University of Chicago, has been appointed to succeed Dr. Hesbacher. Dr. Ervin comes to Des Moines from Baltimore, where he has just completed a year's graduate study at the Johns Hopkins University School of Hygiene and Public Health.

Dr. Tom B. Throckmorton of Des Moines, was selected chairman of the Section on Nervous and Mental Diseases of the American Medical Association at the recent New York session of that organization.

Dr. Frank A. Wilke has opened offices in Woodward for the private practice of medicine. He was graduated in 1939 from the State University of Iowa, College of Medicine, and served internships at the Lutheran Hospital in Sioux City and the Methodist Hospital in Des Moines.

Dr. Asa S. Arent has arrived in Humboldt, where he will be associated in the practice of medicine with his father, Dr. Asaph Arent. Dr. Asa Arent was graduated in 1939 from the State University of Iowa, College of Medicine, and completed his internship at St. Luke's Hospital in Duluth, Minnesota.

Dr. James H. Coddington is another new member of the medical profession in Humboldt. He was graduated in 1939 from the State University of Iowa, College of Medicine, and interned at the Methodist Hospital in Indianapolis. He will be associated with his father, Dr. James K. Coddington.

Dr. Sherman J. Deur who has practiced in Lake View for the past four years, is now in Iowa City where he has accepted a position in the surgical department of the State University of Iowa, College of Medicine. He has disposed of his practice in Lake View to Dr. Rudolph J. Ferlic who comes from Detroit, Michigan, where he has been connected with

the United States Marine Hospital. Dr. Ferlic was graduated from Creighton University School of Medicine, Omaha, in 1935.

Dr. Harry G. Marinos, who for the past year has been associated with the department of internal medicine at the State University of Iowa, College of Medicine, has located in Mason City, where he will be associated with Dr. William C. Egloff.

Dr. E. D. Plass of the State University of Iowa, College of Medicine, is a newly appointed member of the Committee on Blood Transfusions of the National Research Council, which will cooperate with the Medical Corps of the United States Army and Navy.

Recent promotions on the staff of the State University of Iowa, College of Medicine, include: Dr. Erwin G. Gross, promoted to head of the department of pharmacology; Dr. Walter R. Ingram to professor and head of the department of anatomy, neuro-anatomy, histology and embryology; Dr. Rubin Flocks to associate professor of urology; and Dr. Irving H. Borts to assistant professor of hygiene and preventive medicine.

MARRIAGES

The marriage of Miss Beatrice Kaiser of St. Paul, Minnesota, and Dr. John L. Klein, Jr., of Muscatine, took place Monday, June 17, at St. Mark's Church in St. Paul. After a wedding trip they will be at home in Muscatine where Dr. Klein has practiced for the past two years.

Miss Clara Marie Munger, daughter of F. E. Munger, D.D.S., of Grinnell, and Dr. Edward H. Sibley of Sioux City, were married Saturday, June 22, in the Herrick Chapel in Grinnell. Following a wedding trip to Minnesota they will return to Sioux City, where Dr. Sibley has been practicing for the past two years.

DEATH NOTICES

Glew, Percival Bainbridge, of Dallas Center, aged fifty-one, died July 8 in a Springfield, Ohio, hospital after a heart attack. He was graduated in 1913 from Drake University College of Medicine, Des Moines, and at the time of his death was a member of the Dallas-Guthrie Medical Society.

Hammer, Marion R., of Newton, aged eighty-seven, died July 11 of a stroke. He was graduated in 1881 from Northwestern Medical College, St. Joseph, Missouri, and in 1889 from the King Eclectic Medical College of Des Moines, and at the time of his death was a life member of the Jasper County and Iowa State Medical Societies.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

TRAPPING THE COMMON COLD—By George S. Foster, M.D., Manchester, New Hampshire. Fleming H. Revell Company, 158 Fifth Avenue, New York, 1940. Price, \$1.25.

THE NEWER NUTRITION IN PEDIATRIC PRACTICE—By I. Newton Kugelmass, M.D., Broad Street Hospital, New York. Illustrated. J. B. Lippincott Company, Philadelphia, 1940. Price, \$10.00.

PNEUMOCONIOSIS (SILICOSIS): THE STORY OF DUSTY LUNGS—By Lewis Gregory Cole, M.D., Director of Silicotic Research, John B. Pierce Foundation, New York; and William Gregory Cole, M.D., New York. The John B. Pierce Foundation, 40 West 40th Street, New York, 1940. Price, \$1.00.

ARTIFICIAL PNEUMOTHORAX—Edited by Edward N. Packard, M.D., John N. Hayes, M.D., and Sidney F. Blanchet, M.D. Illustrated. Lea and Febiger, Philadelphia, 1940. Price, \$4.00.

THE 1939 YEAR BOOK OF GENERAL THERAPEUTICS—Edited by Bernard Fantus, M.D., professor of therapeutics, University of Illinois College of Medicine. The Year Book Publishers, Chicago, 1940. Price, \$2.50.

SEX IN MARRIAGE—By Ernest R. Groves and Gladys Hoagland Groves. New edition, revised. Emerson Books, Inc., New York, 1940. Price, \$2.00.

DIABETES: PRACTICAL SUGGESTIONS FOR DOCTOR AND PATIENT—By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Second edition, revised and enlarged. The F. A. Davis Company, Philadelphia, 1940. Price, \$2.50.

DISEASES OF THE GALLBLADDER AND BILE DUCTS—By Waltman Walters, M.D., and Albert M. Snell, M.D. The Mayo Clinic, Rochester. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.

CLINICAL ROENTGENOLOGY OF THE ALIMENTARY TRACT—By Jacob Buckstein, M.D., visiting roentgenologist, Bellevue Hospital, New York. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.

SYNOPSIS OF OBSTETRICS—By Jennings C. Litzberg, M.D., professor emeritus of obstetrics and gynecology, University of Minnesota Medical School. The C. V. Mosby Company, St. Louis, 1940. Price, \$4.50.

SPECIALTIES IN MEDICAL PRACTICE, Two Volumes—Edited by Edgar van Nuys Allen, M.D., associate professor of medicine, University of Minnesota, Mayo Foundation. Thomas Nelson and Sons, New York, 1940. Price, \$25.00 per set.

ST. THOMAS'S HOSPITAL REPORTS—Volume IV, Second Series. Published by St. Thomas Hospital, London, S.E.1, 1939. Price, 10s.

OBESITY AND LEANNESS—By Hugo R. Rony, M.D., formerly associate in medicine and chief of endocrine clinic, Northwestern University School of Medicine. Lea and Febiger, Philadelphia, 1940. Price, \$3.75.

THE 1939 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY—Edited by Joseph B. DeLee, M.D., professor of obstetrics, University of Chicago Medical School; and J. P. Greenhill, M.D., professor of obstetrics and gynecology, Loyola University Medical School. The Year Book Publishers, Chicago, 1940. Price, \$2.50.

BOOK REVIEWS

SYNOPSIS OF PEDIATRICS

By John Zahorsky, M.D., professor of pediatrics, St. Louis School of Medicine. Third edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$4.00.

This volume is a very complete synopsis of pediatrics. The essentials of infant feeding are clearly defined, and this should be of value to practitioners, since feeding constitutes a large portion of the difficulties in children.

All phases are briefly but thoroughly discussed. Naturally there are a few debatable points. In discussing prematurity, the authors state, "the causes and prophylaxis of prematurity belong to the department of obstetrics". The life of a potential mother really begins during infancy and conditions may arise during infancy and childhood that may have a direct bearing on prematurity. We should strive to prevent these conditions from occurring during the early periods of life. Another debatable point is rest. The authors state, "one nap a day to the fourth year is sufficient". This might be sufficient for some children, but the reviewer believes the majority will greatly profit by a daily rest period several years beyond the fourth year. The appendix lists the important medicines, the dosage, and how to use them, for the infant under one year of age, which is very valuable.

This little volume is full of useful points in the proper treatment, care and diagnosis of children's diseases. All physicians interested in children will find the book of value for quick reference. A. M. S.

EYE, EAR, NOSE AND THROAT MANUAL FOR NURSES

By Roy H. Parkinson, M.D., St. Joseph's Hospital, San Francisco. Fourth edition. The C. V. Mosby Company, St. Louis, 1939. Price, \$2.25.

This book is a condensed non-technical treatise, concise and free from debatable questions, by definition. It is a good source of reference for nurses, and is intended for this use.

Its brevity in the presentation of the anatomy, physiology and pathology of the eye, ear, nose and throat is commendable. It is very readable, but its brevity is in some places too severe. For example, the paragraph on "The Examination and the Treatment of Eye, Ear, Nose and Throat Conditions in Infants and Young Children" could be made of much greater value by a more detailed description of a good way to wrap the child for examination. The freer use of illustrations would also improve this portion of the book.

Part two deals with operating room technic, and nicely avoids dogmatic descriptions of the operations, giving instead the general principles as applied to technic. The illustrations and names of the instruments should be more carefully checked and would serve as a valuable reference guide for the nurse after her undergraduate days.

Part three deals with the problems met by the public health nurse in diseases of the eye, ear, nose and throat. The illustrations for recording of visual

fields and for the making of audiograms are noteworthy additions to the book.

The book is well prepared and will serve as an excellent reference work for the nurse, as well as a time-saving guide for the teacher. B. M. M.

THE ANTISEPTIC

Special number on genito-urinary diseases. Edited by U. Rama Rau, M.L.C., and U. Krishna Rau, M.B., 323 Thambu Chetty Street, G. T., Madras, India.

The February, 1940, issue of *The Antiseptic*, a medical journal published in Madras, India, is a special number on genito-urinary diseases. The articles are written for the benefit of the general practitioner and are, as a result, thorough reviews of the fundamental concept of the disease entity under discussion. Case histories are used for illustration in only a few articles. Some of the subjects reviewed are biochemical analyses in urology, pyuria, urethral injuries, prostatic hypertrophy, pyelitis, diathermy, anesthesia in urology, use of mandelic acid and sulfanilamide and pyelography. The articles are well written and should be of benefit to the general practitioner who wishes to refresh his memory on any of the subjects treated. R. S.

DIABETES: PRACTICAL SUGGESTIONS FOR DOCTOR AND PATIENT

By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Second edition, revised and enlarged. F. A. Davis Company, Philadelphia, 1940. Price, \$2.50.

Every book written, every article or paper published, every method of educating the diabetic patient or the people of any land, is a step toward the eradication of diabetes, because education is the only known method of prevention and the best method of caring for the disease once it is established in the patient.

Dr. Bortz has in this book set out to educate. Written primarily for the education of his patients, its broad scope includes the doctor. A foreword by Dr. George M. Piersol elaborates upon its contents.

The book deals with the definition and history of diabetes, and the etiology as far as is known. Foods and an easy method of diet calculation are included. The use of insulin and protamine zinc insulin, pregnancy in diabetes, diabetes in children, the care of the feet, diabetic surgery, the teeth, and the various complications of diabetes are simply and fully discussed. Finally, many recipes used by the author are included. E. B. W.

NITROUS OXIDE-OXYGEN ANESTHESIA

By F. W. Clement, M.D., director of anesthesia at Flower Hospital, Toledo, Ohio. Lea and Febiger, Philadelphia, 1939. Price, \$4.00.

This book should prove of great value to anyone interested in nitrous oxide-oxygen anesthesia. The text covers, concisely and thoroughly, everything that is known about nitrous oxide, including the theory of its use as an anesthetic, its manufacture, signs of anesthesia and technic of administration. Considerable space is devoted to a discussion of special technics for various operations and for obstetric surgery, with suggestions for emergency procedures. The concluding chapters deal with nitrous oxide-oxygen for dental anesthesia and analgesia, and the development of gas apparatus.

In his preface, Dr. Clement pays tribute to his predecessor and co-worker, the late Dr. E. I. McKesson, stating that the work is an attempt to reproduce the technics and findings of "the Master", as well as his own impressions and experiences.

This reviewer feels that the book is a necessary addition to the library of every anesthetist. J. C.

CLINICAL DIABETES MELLITUS AND HYPERINSULINISM

By Russell M. Wilder, M.D., professor of medicine, University of Minnesota. W. B. Saunders Company, Philadelphia, 1940. Price, \$6.00.

Dr. Wilder has condensed into 419 pages the whole subject of diabetes, including at the end of each chapter a full bibliography. The liberal use of footnotes supplies much contributory information and thus conserves the reading time of the busy doctor.

After a discussion of blood sugar, the diagnosis, symptoms, pathology, treatment and diet of diabetes, the author outlines the effect and treatment of the various complications. He states in the preface that there is no reason to suppose the existence of diabetes imparts an immunity to any disease, and this is very true. The recognition and treatment of the complications are as important as the disease itself, and patients as well as physicians must be on the lookout for them and know what to do if they should occur. Normal nutrition, with sufficient calories and protective foods containing vitamins and minerals, is advised and outlined. He also discusses the use of alkali in the treatment of diabetic coma and advocates it in opposition to Joslin's strong advice against it. Two chapters are devoted to hyperinsulinism, its diagnosis, pathology and treatment. Twelve case histories of this disease are added.

Dr. Wilder's statement that, in general, physicians of today are still insufficiently informed on how to prescribe insulin, could easily be corrected by a careful study of this book. E. B. W.

WHAT IT MEANS TO BE A DOCTOR

By Dwight Anderson. Published by the Public Relations Bureau, Medical Society of the State of New York, 2 East 103rd Street, New York, N. Y., 1939. Price, \$1.00.

This small book belongs on the reception room table of every doctor in the land, for in a short story it conveys to the layman just what the title implies. It presents a convincing argument against the regimentation of physicians.

The first part of the book is composed of a digest of replies to a questionnaire which was sent to 500 physicians. According to the replies the most important qualifications for a physician are intellectual curiosity, optimism and courage, flexibility, "horse sense", moral and intellectual integrity, personality and scholarship. The second part of the book is a narrative of the career of a typical personality, traced through childhood, boyhood, medical school, internship and private practice, and the participation in the medical society.

This is a well written story which will permit the layman better to understand the physician, his background, the long years of preparation and the fundamental philosophy of his profession. D. K.

PRACTICE OF ALLERGY

By Warren T. Vaughn, M.D., Richmond, Virginia. The C. V. Mosby Company, St. Louis, 1939. Price, \$11.50.

This is an excellent volume, beautifully prepared and edited, and well illustrated. The author in his introduction begins with the premise, "to know allergy one must know medicine". The text is sane from cover to cover, and all the ills to which flesh is heir are not attributed to allergy.

The subject matter is divided into sixteen parts, the first three dealing with the history, the theory, the general characteristics of allergy and the physiology of allergy. Part IV is devoted to allergic diagnosis—the history, skin testing, passive transfer, the patch test, etc. Parts V and VI deal with food allergy; Part VII considers pollens and pollinosis. The succeeding chapters present bacterial allergy, fungi, anaphylaxis, drug allergy, contact and physical allergy, and a detailed consideration of the allergic diseases.

This text on the subject of allergy can be highly recommended as a thorough, sane and authoritative source of the present knowledge of the subject.

D. K.

THE 1939 YEAR BOOK OF PEDIATRICS

Edited by Isaac A. Abt, M.D., professor of pediatrics, Northwestern University Medical School. The Year Book Publishers, Chicago, 1940. Price, \$2.50.

This is the annual edition of the review of the pediatric literature for the year. It briefs the pertinent contributions in the various fields of pedi-

rics, and includes editorial comment, particularly on controversial subjects.

This volume is extremely valuable to the busy practitioner who will find within the covers of one book the contributions to pediatric literature from a wide variety of medical journals of this country and abroad. The pediatrician, in particular, looks forward to this annual publication. It is extremely well done, and the editorial comment is refreshing and to the point.

D. K.

HEALTH OFFICERS' MANUAL

By J. C. Geiger, M.D., Dr. P. H., director of the Department of Public Health, City and County of San Francisco, California. W. B. Saunders and Company, Philadelphia, 1939. Price, \$1.50.

This book presents a comprehensive outline of the activities of the health officer. All phases of public health work are considered, including administration, preventive medicine, child and maternal health, venereal disease control, public health engineering, vital statistics, health education and laboratory functions. The book contains several excellent epidemiologic charts which illustrate the life cycle and methods of transfer of various infections, including among others, undulant fever and rickettsial infections which are of special interest to midwestern health officers.

The information is well presented and should prove a valuable aid to the health officer. C. F. J.

NEW STANDARDS FOR SURGICAL "CATGUT"

The February, 1940, issue of the JOURNAL carried an editorial setting forth the new standards for surgical catgut as specified in the eleventh edition of the United States Pharmacopoeia. The original date on which these standards were to become official was July 1, 1940. On the recommendation of the Committee of Revision of the United States Pharmacopoeia, twelfth edition, and with the approval of the Board of Trustees, this date has been postponed until January 1, 1941. Members of the Iowa State Medical Society are urged to keep this change of date in mind.

AMERICAN BOARD OF OPHTHALMOLOGY EXAMINATIONS

The American Board of Ophthalmology will hold only one written examination during 1941, and this will be conducted in various cities throughout the country on March 8. Application must be made on the regular blanks provided for the purpose and must be received in the office of the board before December 1, 1940. A special oral and clinical examination will be held on the Pacific coast during 1941, providing there are enough candidates to warrant it. Applications for this examination must be filed before September 1, 1940, so that necessary arrangements may be made. Further information and blanks may be secured from the office of the American Board of Ophthalmology, 6830 Waterman Avenue, St. Louis, Missouri.

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THE CAUSES AND SIGNIFICANCE OF ASPHYXIA OF THE NEWBORN*

W. C. C. COLE, M.D., and
DAVID C. KIMBALL, M.D., Detroit, Michigan

Someone has said that the average individual is never again placed in such jeopardy of both life and limb as during his passage through the birth canal. If he survives the plain mechanical hazards of being forced through a passageway which is frequently too small for him, under a pressure of something like twenty-five pounds to the square inch, he has still to face the dangers of asphyxia, anesthesia, narcosis and infection.

It is not remarkable, therefore, that in more than five per cent of all deliveries, the fetus is either stillborn or dies during the first days of life. Moreover, this high mortality rate represents only a minor part of the seriousness of this problem. The children who are thus injured, but do not die, comprise a much more important group. The epileptics, spastics, paralytics, and mental defectives resulting from birth injuries constitute one of our most important social and economic problems. Until recently cerebral hemorrhage has been credited with the responsibility for most of these cases, but in the last few years we have come to believe that the changes produced in the brain by asphyxia are a much more important cause.

Asphyxia of the newborn is usually defined in textbooks on pediatrics as an absence or disturbance of respiration in the newborn infant. Strictly speaking, this is not a good definition. The essential feature of asphyxia is a reduction of the amount of available oxygen in the circulating blood which may not be related to the movements of respiration. Illustrations of this are carbon monoxide poisoning and simple drowning. Likewise, asphyxia of the newborn is usually classified merely as asphyxia livida or asphyxia pallida, or as

intra-uterine or extra-uterine in origin. This merely expresses the degree and time of occurrence of the asphyxia and tells us nothing of its etiology and gives no clue as to its treatment.

In general, there are two kinds of asphyxia of the newborn. There is asphyxia of central origin and there is asphyxia of peripheral origin. By asphyxia of peripheral origin is meant asphyxia resulting from some interference with the entrance of oxygen into the infant's circulation. This may occur before birth from such causes as premature separation of the placenta, interference with the circulation of the umbilical cord, or anoxemia of the mother, or it may occur after birth from strangulation, obstruction of the air passages by foreign material, or atelectasis. Most cases of this type result from the accidents of labor over which we exercise little control, but they fortunately form only a small part of the total number of cases. By asphyxia of central origin is meant asphyxia resulting from some interference with the respiratory center of the brain. This may occur in gross injury or laceration of the brain, from edema or hemorrhage, from the action of toxins, drugs and anesthetics upon the center, or because of the circulatory changes associated with shock.

We have not paid much attention to asphyxia of the newborn until just the past few years. If the infant was stillborn, it was merely put down as one of those things we could do nothing about, or if it ultimately breathed, we were satisfied that everything was all right. However, in the last six years, two important developments in our knowledge have forced us to place an increased significance upon asphyxia of the newborn. The first is an almost completely changed conception of the inauguration of respiration. It was formerly thought, and even current texts will state, that the fetus is born in a state of physiologic apnea, and that as the placental circulation ceases to function, the accumulation of carbon dioxide in the baby's blood stimulates the respiratory center and causes

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respiration to begin. It has been shown by the studies of Snyder and Rosenfeld and now confirmed by numerous others, that the function of the respiration does not begin suddenly at the time of birth any more than does the function of the heart, kidneys, brain or other system, but that the movements of respiration occur in regular rhythm during the latter third of intra-uterine life. Moreover, once these movements are established, they are continuous and not interrupted unless some strong influence is exerted upon the fetus. If this conception is correct, the normal infant should take its first extra-uterine breath within a very few seconds after delivery and a new importance attaches to the baby who is not breathing at birth. It means that any baby who does not breathe within at the most thirty seconds after delivery must be profoundly affected by something, whether it is strangulation, anesthesia, narcosis or shock as a result of the trauma of labor.

Of even greater importance, however, than this changed conception of the inauguration of respiration, has been the demonstration of the devastating pathologic changes produced in the central nervous system when it is deprived of an adequate supply of oxygen for even short periods of time. Yant and his co-workers have shown experimentally that the cells of the brain are much more sensitive to oxygen want than are any other cells in the body and that as short a period as one minute of complete lack of oxygen may be sufficient to cause their death. Courville has described similar changes following nitrous oxide asphyxia and in newborn infants following prolonged cyanosis. Extensive areas of "devastation necrosis" have been observed in the brains of infants dying a few days after severe asphyxia at birth which are apparently identical with those from known anoxic states such as nitrous oxide anesthesia, acute alcoholic intoxication and hyperpyrexia. Schreiber has emphatically brought to our attention the relationship of asphyxia at birth to serious degenerative changes in the brains of older children and has suggested that in many cases excessive sedation of the mother may be the causative factor. In view of the steadily increasing tendency to employ various drugs for the relief of pain during childbirth, Schreiber's contention that they frequently produce severe anoxic states in the infant places a tremendous responsibility upon the physician who administers such drugs. Furthermore, if it is true that serious anoxic states produce extensive degenerative lesions of the brain, is it not possible that lesser anoxic states will produce lesser lesions? This thought opens up a wide field for speculation as to the possible etiology of many

cases of epilepsy, psychopathic personality, and lesser degrees of mental inferiority.

Certainly the seriousness of these implications calls for an explanation regarding the rôle of sedatives and anesthetics in the production of neonatal asphyxia and an appraisal of their comparative importance with other factors leading to this state. It is true that asphyxia was a common occurrence before sedatives or anesthetics were ever administered during childbirth. Such factors as prematurity, the age, parity and health of the mother, accidents of labor, the various forms of dystocia, the duration of labor, the use of oxytocics and operative delivery must all be considered.

It occurred to us that a great deal of valuable information might be obtained from the analysis of a large series of deliveries in which as many as possible of the factors which might produce asphyxia were evaluated. Accordingly we have reviewed the records of 5,000 mothers and babies delivered at the Woman's Hospital in Detroit during 1936 and 1937. The data were tabulated according to the punch card method, which permits the recording of a large amount of data in such a way that they may be accurately cross-analyzed in any desired combination of circumstances.

The material at the Woman's Hospital is particularly well adapted to this type of study because 55 per cent of the patients were delivered by general practitioners, 33 per cent were delivered by obstetric specialists and 12 per cent were delivered by the resident staff. This provides for a wide variety of methods and skills. Moreover, all social groups and nationalities are well represented.

SERIES AS A WHOLE

Table 1 shows the incidence of the various degrees of asphyxia in the entire series. It is neces-

TABLE 1. INCIDENCE OF ASPHYXIA IN ENTIRE SERIES

Cases	Percentage				
	Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Immediate
5,000	1.9	9.4	6.5	9.2	72.8

sary to state at this point our method of determining the various degrees of asphyxia. Technically, asphyxia is a decrease in the amount of oxygen in the circulating blood and only indirectly associated with the respiratory movements. It is obviously impossible by present methods to determine the oxygen concentration of the infant's blood at the exact moment of birth. We chose as the best available criterion the condition of the baby at birth and the duration and amount of resuscitation necessary to establish independent breathing. The methods of resuscitation employed at the Wom-

an's Hospital are the tracheal catheter, carbon dioxide and oxygen inhalations, respiratory stimulants such as coramine and alpha-lobeline, mouth to mouth breathing and artificial respiration. We considered that any baby who required two or more of these methods of resuscitation was severely asphyxiated, particularly when it was noted on the chart that the child was in poor condition for several hours or days after birth. If only one method of resuscitation was employed the baby was classified as mildly asphyxiated. If respiration was spontaneous but delayed for more than thirty seconds the baby was classified as "spontaneous delayed". The stillborn group is obvious. This method of classification is open to certain errors. One obstetrician might employ more resuscitation than another under similar circumstances, and the reverse is also true. Moreover, the retardation of respiration is not necessarily an accurate index to the oxygen saturation of the blood, but it cannot be very far off. However, we feel that in as large a series as 5,000 cases these differences are smoothed out and equalized. At any rate, it forms a constant standard of classification which applies to all subgroups.

Table 2 shows the relationship of the degree of asphyxia to neonatal death (during hospital stay).

TABLE 2

	No. of cases	% of Neonatal deaths
Immediate spontaneous.....	3645	.5
Spontaneous delayed.....	463	1.0
Mild asphyxia.....	327	3.5
Severe asphyxia.....	473	12.1

In the spontaneous immediate group the rate was 0.5 per cent. In the spontaneous delayed group it was one per cent, or twice as great. In the mild asphyxia group it was 3.5 per cent, or about seven times as great. In the severe asphyxia group it was 12.1 per cent, or about twenty-five times as great. This direct relationship is most striking and can hardly help being highly significant.

FETAL FACTORS

The importance of immature development as a factor in asphyxia is shown in Table 3. Prema-

TABLE 3. IMMATURITY AS FACTOR IN ASPHYXIA

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Prematures and twins.....	392	14.5	20.7	10.2	6.6	48.0
Full term.....	4,608	0.8	8.5	6.2	9.5	75.0

turity undoubtedly is the most important single factor causing stillbirth and severe asphyxia.

MATERNAL FACTORS

Certain factors pertaining to the mother show a definite influence on the incidence of asphyxia in the infant:

A. Parity. There were 2,578 primiparas and 2,030 multiparas in the series. The incidence of the asphyxia in these two groups is shown in Table 4. A decided increase in asphyxia in the

TABLE 4. INCIDENCE OF ASPHYXIA AMONG PRIMIPARAS AND MULTIPARAS

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Primiparas.....	2,578	0.7	11.1	7.0	11.2	70.0
Multiparas.....	2,030	0.8	5.2	5.2	7.3	81.8

babies of primiparas is evident.

B. Age of mother. The relationship between the age of the primiparas and multiparas to the incidence of asphyxia in their babies is shown in Tables 5 and 6. Among primiparas, then, the

TABLE 5. AGE OF PRIMIPARAS

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Under 20 years ..	496	0.4	9.9	5.2	9.6	74.8
20-30 years.....	1,805	0.6	11.2	8.0	10.7	69.5
30-40 years.....	272	1.8	12.1	3.3	16.9	65.8

TABLE 6. AGE OF MULTIPARAS

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Under 20 years ..	58	0.0	3.5	6.9	8.6	81.0
20-30 years.....	1,193	0.7	4.7	5.1	7.1	82.4
30-40 years.....	738	0.7	5.9	5.1	7.7	80.6
Over 40 years....	37	8.1	10.8	8.1	5.4	70.3

incidence of severe asphyxia increases and spontaneous immediate respiration decreases with each advancing age period. In multiparas the opposite of the situation in primiparas occurs; the incidence of severe asphyxia decreases and the immediate spontaneous respiration increases with each advancing age period until after forty, when an extreme reversal sets in. The high percentage of stillbirths by women over forty is especially worthy of note.

C. Health of mother. Major illness of the mother is one of the very important factors tending to increase asphyxia in the baby, particularly

in the case of premature birth. This is shown in Tables 7 and 8.

TABLE 7. HEALTH OF MOTHER—PREMATURE BIRTH

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Mother well.....	324	12.3	18.3	9.9	7.4	51.9
Mother ill.....	68	25.0	30.9	11.8	3.0	29.4

TABLE 8. HEALTH OF MOTHER—FULL TERM BIRTH

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Mother well.....	4,450	0.7	8.2	6.2	9.2	75.3
Mother ill.....	156	2.5	16.6	5.7	10.2	64.7

FACTORS OF LABOR

One of the most important factors in the production of asphyxia is the trauma which the baby sustains from the forces of labor. Table 9 shows the influence of the duration of the second stage of labor. An inspection of this table shows very clearly that, with the exception of the first very short period, there is an increase in the incidence of asphyxia and a decrease in spontaneous immediate respiration with each increase in the duration of the second stage of labor. Severe asphyxia

TABLE 9. RELATION OF DURATION OF SECOND STAGE OF LABOR TO DEGREE OF ASPHYXIA

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Less than 15 min.	294	0.7	5.4	5.1	8.5	80.3
15-30 minutes....	739	0.7	4.6	5.0	5.6	84.6
30-60 minutes....	1,610	0.4	6.7	6.6	9.3	77.0
1-2 hours.....	1,154	0.7	9.9	6.6	10.8	73.0
2-3 hours.....	330	0.7	13.3	6.4	13.9	65.8
3-4 hours.....	517	1.9	15.3	5.7	13.4	63.7
4-5 hours.....	70	0.0	18.6	10.0	11.4	60.0
5-6 hours.....	40	7.5	15.0	10.0	15.0	52.5
Over 6 hours.....	42	4.8	28.6	4.8	11.9	50.0

increases from a low of 4.6 per cent to a high of 28.6 per cent, and immediate spontaneous breathing decreases from a high of 84.6 per cent to a low of 50 per cent. It would seem clear that there is a direct relationship between the duration of the second stage of labor and the incidence of asphyxia in the baby. The high incidence of stillbirths in the longest two period groups is worthy of note. The somewhat greater incidence of asphyxia in the very short period group suggests that there is increased trauma to the baby in precipitate deliveries. The same relationship exists between the length of the first stage but in a much less pronounced degree. The trauma exerted on the baby during the first stage of labor is from the

contracting uterus as contrasted to the direct trauma to the baby's head which occurs during the second stage.

FACTORS OF DELIVERY

The influence of the type of delivery on the incidence of asphyxia is shown in Table 10. If

TABLE 10. TYPE OF DELIVERY

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Spontaneous.....	2,660	0.4	4.4	5.2	6.6	83.4
Low forceps.....	1,151	0.9	10.3	6.3	10.2	72.3
Version and Extraction.....	87	4.6	17.2	17.2	24.2	36.5
Breech Extraction.....	118	0.8	22.0	5.9	24.6	46.6
Mid forceps.....	264	1.9	22.8	5.3	15.2	54.9
Cesarean Elective.....	108	1.8	15.0	4.7	5.6	72.9
Cesarean after Labor.....	64	1.5	21.5	6.3	12.5	57.8

trauma to the infant is a factor in causing asphyxia, the type of delivery should be very important. Asphyxia occurs with considerably greater frequency in low forceps delivery than in spontaneous delivery. However, in most of these cases episiotomy is also performed, which necessitates anesthesia. As will be shown later, this is an important factor and probably accounts for much of the increase in asphyxia in the low forceps group. A very brief inspection of this table dealing with the type of delivery is sufficient to show what a tremendously important factor this is. It serves to emphasize most emphatically that trauma to the infant is of major importance in producing asphyxia. There were 108 cases of elective cesarean section and 64 in which labor had started. In the former the element of trauma is almost completely avoided, but the factors of anesthesia and sedation are not, as will be brought out later. In the latter group some element of trauma is added.

SEDATIVE FACTORS

There were 631 mothers who received no sedative whatever during labor. Slightly more than one-third of these were primiparas, so that it forms an excellent control group. The incidence of asphyxia in this group is shown in Table 11.

TABLE 11. INCIDENCE OF ASPHYXIA IN GROUP IN WHICH MOTHERS RECEIVED NO SEDATIVE

Cases	Percentage				
	Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
631	1.9	3.0	3.2	3.8	88.1

The incidence of severe asphyxia is only three per cent as compared to 8.6 per cent for the series as

a whole, and immediate spontaneous respiration is 88.1 per cent as compared with 75 per cent. This is a very impressive difference.

Morphine. Eighty-one mothers received morphine within four hours of delivery. It has been said that morphine given during this time exerts a marked effect on the baby. There were 147 mothers who received morphine more than four hours before delivery. While the effect is not nearly as striking as in the preceding group, it is still very marked. The incidence of asphyxia in these two groups is shown in Table 12.

TABLE 12. INCIDENCE OF ASPHYXIA IN GROUP IN WHICH MOTHERS RECEIVED MORPHINE

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
Within 4 hours of delivery.....	81	6.2	34.6	7.0	12.3	38.3
More than 4 hours before delivery.....	147	0.0	17.7	8.8	15.6	57.8

Scopolamine. The effect of scopolamine was studied by dividing the cases into groups based on the number of units administered: 1/150 grain (0.0004 gram) was considered a unit. It should be noted that in the group receiving only one unit the incidence of severe asphyxia is twice as great as in the group receiving no sedatives and that immediate spontaneous respiration is ten per cent less.

TABLE 13. INCIDENCE OF ASPHYXIA WITH SCOPOLAMINE (1/150 GRAIN UNIT)

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
No sedative.....	631	1.9	3.0	3.2	3.8	88.1
1 unit.....	671	0.6	6.6	5.8	9.1	78.0
2 units.....	714	1.1	7.3	5.6	11.1	75.1
3 units.....	1,031	0.5	8.5	6.5	8.8	75.7
4 units.....	515	0.8	9.5	7.6	10.1	71.7
5 units.....	255	0.4	15.3	7.1	13.3	63.9
6 units.....	138	0.0	12.3	10.2	18.1	59.4
7-16 units.....	188	0.5	18.6	11.2	12.8	56.9

Pentobarbital Sodium. The same procedure was followed in cases in which pentobarbital sodium was given. The unit of pentobarbital sodium was taken as 1½ grains (0.1 gram). The

TABLE 14. PENTOBARBITAL SODIUM (1½ GRAIN UNIT)

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
No sedative.....	631	1.9	3.0	3.2	3.8	88.1
1 unit.....	70	0.0	1.4	7.1	12.9	78.6
2 units.....	403	0.5	10.2	6.2	10.9	72.2
3 units.....	348	0.0	13.8	18.1	8.9	59.2
4 units.....	170	1.2	14.7	10.0	14.1	60.0

results are shown in Table 14. It will be noted that with each increase in the dosage, the incidence of asphyxia increases.

Paraldehyde. Table 15 shows the incidence of asphyxia in cases in which paraldehyde was given.

TABLE 15. PARALDEHYDE

Cases	Percentage				
	Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
131	0.0	26.0	10.3	16.0	47.7

ANESTHESIA

Ether. Cases in which ether anesthesia was given were divided into groups on the basis of the length of time during which ether was administered before the birth of the baby. The results of this study are shown in Table 16. A direct rela-

TABLE 16. ETHER ANESTHESIA

Duration of ether anesthesia	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
None.....	124	1.6	1.6	4.8	8.8	83.0
Less than 15 min.	1,790	0.4	6.0	4.7	7.6	81.2
15-30 minutes.....	1,673	0.4	9.5	7.3	10.9	72.3
30-45 minutes.....	535	1.8	12.7	6.5	9.1	69.7
45-60 minutes.....	159	1.9	12.5	10.1	17.0	58.5
Over one hour.....	75	5.3	12.0	4.0	13.3	65.3

tionship of asphyxia to the amount of ether given is apparent.

Nitrous Oxide. There were only 240 cases in the series in which nitrous oxide either alone or in combination with ether was given. The incidence of asphyxia in this group is shown in Table 17.

TABLE 17. NITROUS OXIDE ANESTHESIA

Cases	Percentage				
	Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Spontaneous Immediate
240	0.0	14.2	6.6	11.1	67.5

The small number of cases in this group does not permit of further analysis, but the somewhat higher incidence of asphyxia in this group seems very definite.

Anesthesia in Cesarean Section. The most striking effect of general ether anesthesia on the baby is shown in cases in which cesarean section was done. There were 108 full term, elective cesarean sections done in this series. Sixty of these were done under general ether anesthesia with a high incidence of severe asphyxia and stillbirths and a very low incidence of spontaneous respiration. Forty-eight sections were done under spinal anesthesia. These two groups of cases are entirely comparable in every way. All factors of labor

and delivery are eliminated, so that the striking results shown are clearly due to ether. The results are shown in Table 18.

TABLE 18. ANESTHESIA IN CESAREAN SECTION

	Cases	Percentage				
		Still-born	Severe Asphyxia	Mild Asphyxia	Spontaneous Delayed	Immediate
Ether	60	3 4	23 3	5 0	10 0	58 3
Spinal	48	0 0	4 2	4 2	0 0	91 6

SUMMARY

Five thousand consecutive deliveries at the Woman's Hospital in Detroit have been analyzed with a view of determining the relative importance of the various factors which contribute to the production of asphyxia in the newborn. The maturity of the infant, the age, parity and health of the mother, the duration of the various stages of labor, the type of delivery and the use of sedatives and anesthetics all exert important influences on the incidence of asphyxia. It should be noted that these factors frequently operate in combination.

CONCLUSIONS

1. The most important single factor in the etiology of neonatal asphyxia is prematurity.
2. The next most important factor is the trauma of labor, whether due to the normal forces of normal labor or accentuated by dystocia and operative delivery.
3. Sedatives in any amount definitely increase the incidence of asphyxia in the baby in direct proportion to the amounts given.
4. General anesthesia in any amount definitely increases the incidence of asphyxia in the baby in direct proportion to the duration of the anesthesia.

INFECTIOUS MONONUCLEOSIS WITH A MILD LEUKEMOID REACTION

REPORT OF A CASE

DIEDRICH J. HAINES, M.D., and
HENRY H. CORN, M.D.

Des Moines

The following is a brief report of a case in which a very confusing blood picture developed.

The patient, G. S., was a girl thirteen years of age. Her past history and family history were unimportant. On October 5, 1939, she became ill with fever, malaise, generalized aching and a sore throat. She was first seen on October 15 when her brother became ill and complained of the same symptoms. The following morning the boy developed a generalized erythematous eruption and

a diagnosis of scarlet fever was made. Both were given forty cubic centimeters of convalescent scarlet fever serum. Within two days the boy's temperature returned to normal, although the sore throat persisted for several more days. The girl's fever, however, increased to 104 degrees and she developed large, tender, inflamed, cervical lymph nodes. She had a diffuse generalized erythema. She was given forty cubic centimeters more of scarlet fever convalescent serum with no effect and on October 23 was admitted to the Broadlawns Contagious Hospital with a diagnosis of scarlet fever.

Physical examination on admission revealed an acutely ill female child of thirteen years. Her temperature was 102 degrees, pulse 104, and respirations 20. The pharynx was very red, but there was no membrane and no edema. There was a suggestion of the so-called strawberry tongue. The cervical lymph nodes, especially those on the left were enlarged, discrete and quite tender. There was a generalized erythematous flush. The examination of the chest and heart was not remarkable. The reflexes were normal, and there was no evidence of meningismus. The upper left abdomen was tender and the spleen and liver were definitely palpable on November 1. Several blood cultures taken at the daily peak in temperature were reported negative. Agglutination tests for typhoid fever and Malta fever, and the blood Wassermann test were reported negative. Repeated urinalyses were also essentially negative.

The patient was given sulfanilamide, seventy grains, over a period of three days and general supportive treatment and nursing care. Sulfanilamide did not greatly affect her course and she continued to run a septic type of fever for eight days, gradually improving until her discharge on November 1.

A white blood count made on admission revealed 14,900 cells. The differential count was erroneously reported as: monocytes, 88 per cent; and neutrophils, 13 per cent. Investigation of the blood smear showed 88 per cent of large leukocytoid lymphocytes of the type described so ably by Downey and by Heck in Downey's handbook of hematology. However, moderate hypochromia and evidence of intense regeneration were present. Polychromatophilia, basophilic stippling and an occasional small normoblast were seen. In addition, myeloid immaturity was present. Myelocytes, promyelocytes and an occasional leukoblast were seen. No stem cells were found (myeloblasts), however. The immature myeloid cells were present in small numbers. A left shift with moderate toxicity was seen in the neutrophils.

The platelets appeared normal. The eosinophiles were not increased. Blood smears the following day presented the same findings. The patient then improved clinically and the evidence of myeloid immaturity and intense regeneration disappeared. Blood smears examined on successive days still showed the lymphocytosis and the presence of leukocytoid lymphocytes. The patient was discharged on November 1, 1939, much improved.

A subsequent blood smear showed a slight lymphocytosis, but leukocytoid features of the cells were not evident. A heterophile antibody agglutination test was done on November 10, 1939, and reported positive in a titer of 1:150. The patient returned to school and was well until November 18, at which time she was admitted to the Iowa Methodist Hospital. A diagnosis of acute suppurative appendicitis was made and was confirmed at operation. It is interesting to note that upon admission this time the patient's white blood count was 18,300 cells. The differential count showed lymphocytes, 45 per cent; monocytes, 7 per cent; and polymorphonuclears, 48 per cent. The increase in lymphocytes gave a little concern in making a diagnosis of appendicitis.

The patient made an uneventful recovery and was discharged on November 26, 1939. A smear on January 26, 1940, was normal. The lymphocytes were apparently unaltered. The cells of the myeloid series were normal and there was no evidence of regeneration. The patient has continued to be well.

The leukemoid reaction, the mild and the pronounced evidence of regeneration have not been reported so far as occurring in the course of infectious mononucleosis. It is very probable that this type of response was provoked by the administration of a drug of the sulfanilamide variety. It was not felt that this response was due, in any respect, to a possible coexisting scarlet fever with severe toxicity. The absence of an eosinophilia tends to confirm this view, although of course, it is possible for the two diseases to appear simultaneously in the same patient as far as now is known.

Leukemoid reactions, some far from mild, are not uncommon after administration of the sulfanilamide drugs. It has seemed that the most severe leukemoid reactions follow the exhibition of sulfapyridine. Immature erythrocytes, polychromatophilia and basophilic stippling appear commonly after administration of these dyes. However, they have not appeared in cases of infectious mononucleosis.

The administration of sulfanilamide had no effect upon the appearance of the leukocytoid lymphocytes.

These cells resembled those seen in other cases of infectious mononucleosis in every way. Clinically the child was nauseated and vomited while taking the sulfanilamide. The acute appendicitis and surgical operation later did not alter the tendency toward lymphocytosis, and this is in accord with previous observations that the lymphocytosis may persist for some time.

SUMMARY

A case of infectious mononucleosis has been presented. Attention is called to an alteration of the usual blood picture in the presence of anemia, pronounced regeneration and a mild form of leukemoid reaction. It is suggested that these reactions were due to the administration of sulfanilamide.

INTERPRETATION OF LABORATORY REPORTS IN THE SEROLOGY OF SYPHILIS

M. E. BARNES, M.D., Director
State Hygienic Laboratory, Iowa City

The wording of the subject assigned for discussion implies that laboratory reports in serology are not clear-cut and conclusive and that they need interpretation as to their significance. This implication, however, is not limited to serologic examinations. All laboratory tests need to be interpreted in relating them to the clinical study of disease. The need for such interpretation becomes increasingly acute in proportion as an attempt is made to ascribe to the laboratory a determinative rather than an accessory function.

Consider, for example, the direct microscopic observation of organisms causative of disease. In the case of plasmodia, the ova of helminths, vegetative and cyst forms of protozoa, diagnoses often can be made by direct observation under the microscope. Under the microscope may be seen also the organisms causative of tuberculosis, diphtheria, pneumonia, gonorrhea and syphilis. These have certain morphologic and staining qualities which are highly characteristic. Nevertheless, the laboratory cannot safely issue dogmatic reports based solely upon direct microscopic evidence of these diseases. The physician must interpret positive reports of this kind in the light of clinical findings. Cultural methods are applicable in some instances; for example, in the typhoid group of organisms. The laboratory can arrive at positive identification in many instances. However, the physician must interpret these findings in accordance with the clinical picture.

*Presented before the Conference of Iowa Venereal Disease Clinic Directors, State Department of Health, Des Moines, May 22, 1940.

Immunologic reactions may be studied in the field or in the laboratory. In the field, one may use intradermal tests in the study of tuberculosis, undulant fever and trichinosis. It is common knowledge that positive reactions do not necessarily mean clinical disease. In other words, the results of these tests must be interpreted. Serologic reactions may be used for the study of certain diseases. Thus, we use agglutination tests in typhoid, undulant fever, tularemia and Rocky Mountain and typhus fevers. In some of these we encounter reactions which are confusing. In typhoid there are at least three antigenic factors "O", "H" and "Vi" which require interpretation when related to individual cases. In Rocky Mountain fever and in the typhus fevers, and in members of the proteus group there is an antigen so closely related that agglutination of the proteus groups is taken as indicative of the corresponding tissue reaction for typhus fever and Rocky Mountain fever. Here again, the laboratory report must be interpreted.

When we come to the complement fixation and precipitation tests used in the study of syphilis, we encounter a comparable situation. These tests indicate the existence in the serum of a reacting substance (reagin) which experience has shown to exist in syphilitic serum. Ingenious attempts have been made so to balance the tests as to secure negative reactions in all non-syphilitic sera and positive reactions in all syphilitic sera. This ideal has been approached to a remarkable degree but perfection has not been attained and probably never can be attained by the present tests. Of these tests, two definite statements can be made: first, by them the laboratory can show the presence or absence of *reagin* at those levels where it commonly occurs in known syphilis, and a positive test means that *reagin* at that level has been found; second, because of the careful control over these tests, definitely positive reports mean syphilis *until such diagnosis has been ruled out*.

LABORATORY EVALUATION TEST 1939

Sensitivity (Per cent of those known to be syphilitic, who were detected by the laboratory)	Specificity Per cent of blood specimens from presumably normal non- syphilitic individuals found negative by the laboratory)
Kline..... 78 7	100 0
Iowa..... 78 6	100 0
Kolmer..... 83 4	100 0
Iowa..... 84 5	100 0

To show the reason for these statements, the results of the Iowa State Hygienic Laboratory in the last national test are here cited. In such evaluation tests, the laboratory is judged by the false

positive reactions (only one per cent being allowed), and by the sensitivity; that is, the percentage of known syphilitic cases which it detects. In sensitivity its results must be within ten per cent of those attained by the deviser of the test used. On the face of these results the physician might be justified in assuming that a positive serology means syphilis no matter what the history or clinical findings may be. Dealing with people en masse, such a conclusion would be correct in all but perhaps one per cent of the cases. In fact, it is not at all uncommon to elicit a history of the initial attack when the patient is confronted with the laboratory report. It may be assumed that no questions arise when the laboratory findings and clinical evidence agree.

Diagnosis, however, is not to be made en masse. It is an individual matter. In view of the social consequences of a positive diagnosis, as well as the disastrous consequences of an erroneous diagnosis, it is just as much the responsibility of the physician to rule out syphilis as it is to rule it in. The basing of a positive diagnosis of syphilis upon laboratory findings to the exclusion of all other evidence does not constitute a fulfillment of the physician's obligation to the patient. It must be remembered at all times that we are dealing with people and not with percentages. In a state such as Iowa where the present volume of serologic tests is at the rate of 150,000 a year, the permissible error of one per cent means approximately 1,500 people a year. This one per cent may have their future jeopardized by false positive tests or by errors in the collection, labeling, forwarding or examination of specimens. An earnest plea is made in the interest of this one per cent that the laboratory findings be given their proper place, namely that of presumptive rather than determinative evidence. Those responsible for serologic examinations are somewhat appalled by the willingness of physicians to diagnose "laboratory syphilis" in the absence of any evidence except that provided by a single laboratory report. In issuing such a report, all that the laboratory has done is to show the presence of reagin in the serum examined, and to force the physician to consider syphilis as the first and greatest probability in differential diagnosis.

Differential diagnosis, however, remains and the standard tests now available cannot make it with absolute certainty. Various reasons may be given for this caution.

1. Laboratories are not infallible; they may make mistakes.
2. When multiple tests are made on the same specimen, often these tests do not agree.

3. It is known that animal serum may contain a reagin in amounts sufficient to yield positive tests. This is true of the serum of horses, cows and various other animals. It is not true of human serum generally. Nevertheless, until the contrary has been proved, the possibility must be admitted that an occasional reaction may be due to naturally existent reagin.

4. Considering individual variations, it is not as yet known to what extent febrile and other abnormal conditions, dietary factors, etc., may affect these tests temporarily.

With reference to the interpretation of reports, therefore, a series of questions arise.

1. *What does the term "positive test" mean?* For any given method of testing, a specimen is reported positive if the reagin therein exists at an arbitrarily established level. If reagin below that level is found, the specimen is reported as doubtful. If no reagin is found, a negative report is issued. Where multiple methods of testing are used one can avoid confusion by realizing that these various methods of testing merely determine whether or not reagin at the arbitrarily selected level has been found. Positive or doubtful reports by any or all methods mean just that. If all tests are persistently positive, the probability that syphilis is the cause is extremely great. Nevertheless, the laboratory cannot undertake by the present tests to state whether or not an individual has syphilis. The physician must make that interpretation.

2. *Assuming that the history and serology agree, does a positive test mean that the disease is active?* A positive test, no matter how strong it may be, gives no evidence whatsoever as to the activity of the disease. Those with active secondary disease and those with latent or even old congenital infection may yield equally strong reactions.

3. *Do the positive serologic tests indicate whether the case is infective?* The serologic tests afford no evidence whatsoever as to whether the individual is infective. In cases under treatment in which the serology changes to negative and remains so, one is justified in assuming that the individual is non-infective. Among those with persistent positive serology, however, the laboratory cannot differentiate infective from non-infective cases.

It is evident, therefore, that it is not the laboratory, but only those familiar with the clinical aspects of the case who are in a position to interpret reports in their bearing upon the existence, activity and infectivity of the disease in any given case.

SUMMARY

1. The standard serologic tests used in the study of syphilis indicate the presence or absence of reagin at levels where it commonly occurs in known syphilis.

2. In evaluation studies of known syphilitic and negative sera, the standard tests approach but do not consistently attain absolute specificity. A fringe of one per cent false positive tests may be expected.

3. The serologic reports constitute presumptive rather than determinative evidence for or against the existence of syphilis in a given individual.

4. The serologic tests in themselves afford no evidence as to the activity or infectivity of the disease in a given individual.

5. The interpretation of serologic tests in the study of syphilis cannot be made apart from the history and clinical findings of the patient.

MODERN TREATMENT OF VARICOSITIES OF THE LOWER EXTREMITIES*

SEBASTIAN A. CARNAZZO, M.D., LeMars

Few procedures in the practice of medicine are so completely satisfactory, that when a method of treatment for a given condition is evolved, which to all intents and purposes approaches the ideal, we would be inclined to believe that that method would be wholeheartedly and enthusiastically embraced by the profession. Such, indeed, is true of most procedures productive of good results, and, too often, of some that are soon proved valueless. The modern treatment of varicosities is one procedure which, when correctly applied, will in most cases produce very satisfactory results. It is surprising that so many of our colleagues are content merely to inject varicose veins when in a great many instances, more than injection should be done. It is for this reason that I have been prompted to write this paper, in the hope that more of us will be led to use the modern way of treatment.

Varicosities are usually veins, and they occur principally in the lower extremities, where they involve the vessels of the long and short saphenous systems, which by virtue of their location just beneath the skin, are more prone to become dilated and tortuous. Some authorities are of the belief that many patients with varicosities have a congenital weakness of the vessel wall, and that this weakness is a primary factor in the etiology of this

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very common complaint. Other factors must also be considered, and most important among these are heredity, occupation, metabolic changes, endocrine dysfunction, infection, thrombosis of the deep veins and pelvic tumors.

Pathologically varicose veins show varying degrees of dilatation and lengthening. They may be very tortuous, and usually there is enough distortion of the normal anatomy to cause incompetency of the valves within their lumina. This produces a reversal in the direction of blood flow, which in the case of the superficial veins is from above downward. If the process has progressed far enough, there is a flow of blood from the deep to the superficial veins through the communicating veins.

Not all patients with varicose veins present themselves for treatment. Women will usually consult their physicians because their legs have become unsightly. On being questioned, the patient may or may not admit the presence of other symptoms such as burning, itching, cramping and a feeling of heaviness in the legs.

Some patients are seen with complications which are more or less a direct result of the presence of varicosities. Infection, with or without thrombophlebitis is not uncommon. Dermatitis, with its accompanying pigmentation, and sometimes ulceration are seen. Embolism and hemorrhage from varicosities are sufficiently rare that they need not cause any particular worry.

Before varicose veins are treated a complete physical examination should be done to determine the presence of any condition which may contraindicate treatment, and to exclude such conditions as pelvic tumors, which may be responsible for the formation of varicosities. The examination of the patient must include the performance of certain tests which should give a very definite picture as to the condition of the venous system of the lower extremities. From this we plan our procedure for treatment. When these tests have been performed, we should know whether or not the valves of the superficial and communicating veins are competent; whether or not the deep and communicating veins are patent; and whether or not the arterial supply of the extremity is adequate.

The Trendelenburg test, if positive, indicates that the valves of the superficial veins are incompetent. The patient is made to recline on the examining table, and the affected extremity is elevated so as to empty all varicosities of their blood. The examiner then makes pressure at the fossa ovalis and maintains this pressure while the patient assumes the standing position. The pressure is then released. If there is sudden refilling of the veins, the test is positive.

The comparative tourniquet test of Ochsner and Mahorner renders unnecessary the performance of all the other tests which we used to do. This test is really the old Perthes test, but it gives us more information because it is applied at different levels of the thigh. The patient is examined while standing still, walking about without a tourniquet, walking with a tourniquet at the upper end of the thigh, walking with a tourniquet at the middle of the thigh, and walking with a tourniquet at the lower end of the thigh. The prominence of the varicosities below the tourniquet is observed and noted under each instance. It will be noted that even when the patient walks about without a tourniquet, there will be a decrease in the size of the veins. This happens because by muscular action the circulation in the deep veins is speeded up, and thus there is created a negative pressure which is transmitted through the communicating veins to the superficial veins. The result is a greater flow of blood toward the deep circulation and a relative emptying of the varicosities. If the varicosities become more prominent as the patient walks about, or when a tourniquet is applied later, the logical assumption is that the deep veins are occluded. If the veins become less prominent when the tourniquet is at the upper end of the thigh and no further improvement occurs when the tourniquet is applied at lower levels, we conclude that the valves of the deep and communicating veins are competent. If there is greater improvement with a tourniquet at the middle of the thigh, we conclude that blood is finding its way to the superficial system through incompetent valves in the communicating veins somewhere between the upper end and the middle of the thigh. If a still greater improvement occurs with the tourniquet at the lowest level, then we must conclude that practically all of the communicating veins in the thigh have incompetent valves.

In older patients, or in those whom we suspect of having arterial disease, it is advisable to test for adequate blood supply to the lower extremity. The pulsation of the dorsalis pedis and posterior tibial arteries must always be searched for. In addition, one may make several punctures through a drop of sterile histamine phosphate solution, 1:1000, placed on the skin of the leg. This is done exactly as vaccination for smallpox. If the arterial supply to the extremity is adequate, a wheal surrounded by a red zone will form in less than five minutes. Some authorities advise the performance of this test on all patients past the age of fifty.

If one disregards the cases where conservative treatment is indicated, the treatment of varicose veins resolves itself into treatment by injection of

sclerosing substances only, and surgical treatment in combination with injection. It would be superfluous to go into detail about the technic of injection. There are several methods from which one may choose, and each one develops some characteristic technic which he finds most suitable. There are several types of sclerosing solutions which can be used. We have used five per cent sodium morrhuate almost exclusively. The only patients on whom we employ this method are those who do not show a positive Trendelenberg test and those who refuse surgical measures.

A word of caution at this point regarding possible allergic reactions would not be out of place. Sodium morrhuate has enjoyed the reputation of being relatively innocuous, but according to recent literature some patients will develop sensitivity to it. In May, 1939, Shelley reported a death following the use of monolate which contains chemicals similar to those found in sodium morrhuate. In September, 1939, Holland reported three cases of allergic reactions with more or less alarming symptoms. I have seen one patient who developed an erythematous rash accompanied by severe itching. The lesions subsided in about ten days, and apparently the patient suffered no other ill effects. If a patient has had one or several injections of sodium morrhuate, monolate or other soap preparation, and then discontinues treatment for a considerable period of time, it would seem reasonable, in view of these reports, to use a different type of sclerosing solution when treatment is resumed.

Patients who show a positive Trendelenberg test and those who have progressed to the stage of incompetency of the valves in the communicating veins, should receive the benefit of surgical treatment. If we have proved the valves of the communicating veins to be competent, we prefer high ligation of the long saphenous vein at the fossa ovalis with retrograde injection at the time of operation, followed by injection of all remaining veins later. If the valves of the communicating veins are incompetent, then low ligation should be added, the level at which low ligation is to be performed being determined by the comparative tourniquet test. In the latter type of case, low ligation may sometimes be omitted, with the hope that high ligation and retrograde injection alone will suffice. Low ligation can always be performed later.

Before undertaking surgical treatment on a given case of varicosities, one should bear in mind certain contraindications to the operation. One of the most important is occlusion of the deep veins. Advanced age should be regarded as an indication for conservative treatment, as should pregnancy.

The presence of certain diseases such as advanced cancer, tuberculosis or heart disease, and the presence of arterial disease, such as advanced arteriosclerosis or thrombo-angiitis obliterans are definite contraindications. History of preceding phlebitis of the deep veins should make one proceed with caution. The presence of a phlebitis is of course an absolute contraindication. The presence of a pelvic tumor or any other form of mechanical obstruction in the pelvis prohibits the operation. Those patients having infected varicose ulcers should be treated conservatively until the infection subsides. It is not essential that the ulcer be healed first. Another contraindication to surgical treatment is the presence of any superficial or deep inflammatory process in or about the operative area. This, of course, merely postpones the operation until such time when the lesion or lesions have healed.

High ligation can be performed in one's office if the proper equipment is available, but we have found it more satisfactory to hospitalize our patients for one or two days. We guard against embolism by having the patients exercise their legs in bed. The operation is carried out under local anesthesia. We have used both the transverse and longitudinal incisions, and have no particular preference for either. The operator palpates the pulsation of the femoral artery and begins his incision just medial to this point and about two finger-breadths below the inguinal ligament. The incision is carried through the superficial fascia, and by blunt dissection the long saphenous vein should be exposed at the fossa ovalis, where it dips posteriorly to join the femoral vein. At this point there will be found several tributaries which join the saphenous vein both from the medial and from the lateral aspects. They are the external circumflex iliac, external superficial femoral, and the external pudendal veins. These should be separately clamped, cut and ligated, and in addition, the saphenous vein should be dissected free from its bed for a distance of about three inches distally, all intervening tributaries being clamped, cut and ligated. The saphenous vein is then cut between clamps as high as is safely possible without injury to the femoral vein. The stump is transfixed with number one chromic catgut and tied on both sides. An additional encircling ligature is placed proximal to this. The vein is again clamped doubly about three inches distal to the first point of section and cut again. At this point, if retrograde injection is to be done, ten to twenty cubic centimeters of 30 per cent glucose in 10 per cent sodium chloride are injected into the distal portion of the vein, either through a needle pierce-

ing the vein or through a cannula tied in place. If sodium morrhuate is used, two to five cubic centimeters are injected. One must be careful that none of the sclerosing solution is spilled outside of the vein. However, if this does happen, the wound should be thoroughly flushed with sterile normal salt solution. The distal stump is then ligated in exactly the same manner as at the upper level. Closure of the wound is without drainage, and according to the operator's favored technic. The patient remains in the hospital one or two days and is then instructed to appear at the office in one week, at which time injection of the remaining veins is begun. More often than not, if retrograde injection has been done, within twenty-four hours a hard thrombus can be felt along the entire course of the long saphenous vein in the thigh. The appearance of the veins is invariably improved.

We have followed this procedure for the past four years, and we have been gratified with our results. The patients will voluntarily state that their legs feel lighter, and they are very grateful for the improved appearance. In our experience, the number of necessary follow-up injections has varied from two to six. One patient on whom we did a bilateral transection with retrograde injection on one side was so elated with the results that he felt he did not need injections. Another observation which I think is noteworthy is that varicose ulcers show a remarkable tendency to heal following this form of treatment.

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INTERSTATE POSTGRADUATE MEDICAL ASSEMBLY

The 1940 International Assembly of the Interstate Postgraduate Medical Association of North America will be held in the Public Auditorium, Cleveland, Ohio, October 14, 15, 16, 17 and 18. The Academy of Medicine of Cleveland and the Cuyahoga County Medical Society will be hosts to the Assembly, and the officers of these groups extend a most cordial invitation to all members of the profession in good standing to attend the Assembly. The registration fee for the scientific and clinical sessions will be \$5.00. Attention is directed to the list of distinguished teachers and clinicians who are to take part on the program, which will be found on page xvii of the advertising section of this Journal. More detailed information will be carried in next month's issue.

CONVALESCENT SCARLET FEVER SERUM IN OTORRHINOLOGIC CONDITIONS*

JACK V. TREYNOR, M.D., Council Bluffs

In 1936 our interest in convalescent scarlet fever serum was attracted by the spectacular recovery of a youngster with lateral sinus thrombosis. Extensive exposure and obliteration of the sinus, ligation of the jugular vein and frequent transfusions had made no impression on his septic course. Through the courtesy of Dr. Sydney Levinson of the Samuel Deutsch Serum Center of Chicago and the Iowa State Department of Health a large quantity of serum was made available and undoubtedly was responsible for the patient's recovery.

Since this experience the serum has been used in known streptococcic infections with results so consistently good that serum must be given a high place among our various methods of attack on such infections. Before convalescent serum became available we had been using whole convalescent blood with comparable results but with all the difficulties inherent in its administration. Nonspecific immune blood had been helpful, non-immune transfusions useful and commercial antistreptococcic serum of no value in our hands. Sulfanilamide was as yet unknown. Convalescent serum affords all the advantages of all these methods (except the addition of new red blood cells), has none of their disadvantages, is readily available and is easily administered.

By choice we use the intravenous route, usually diluting the serum in saline or in glucose saline. It should not be mixed with citrated blood because on several such attempts we have encountered coagulation within the tube and needle. The intramuscular route is advisable for slower and steadier absorption. In infants we give the serum intraperitoneally and expect a response somewhere between intravenous and intramuscular administration insofar as speed of action is concerned. As to dosage, we are governed by the severity of infection and the size of the patient, repeating administration on a twelve-hour basis as long as indicated. In severe infections we give from forty to sixty cubic centimeters twice daily to the average adult, being certain that only clear serum properly warmed is given slowly into the vein. We have had no reaction, immediate or delayed.

The cases presented are necessarily few since serum has not been given to any patient unless the condition was unusually severe from the onset, unless serious complications were probable or es-

*Presented before the Eighty-ninth Annual Session, Iowa State Medical Society, Des Moines, May 1, 2 and 3, 1940.

tablished, unless ordinary methods had failed and infection persisted, or unless the diagnosis of scarlet fever was definite. A few of the latest patients have received sulfanilamide as well as serum, but almost without exception when an improvement was obtained it was too prompt to be attributed to the drug. For several years prior to the appearance of convalescent serum we had been getting good results in subacute streptococcic throat infections with cervical adenitis using whole immune blood intramuscularly. We still rely on blood in these cases where it is available, but occasionally use convalescent serum with as good but no better results. Because these cases are rarely hospitalized, we have no temperature records to show. However, I am showing a series of charts which are exact copies of temperature records in otorhinologic cases receiving convalescent serum. Only the significant part of each record is included. Each case is designated by number and all cases on a given chart are of the same general group. The point at which serum was given and the amount given are indicated by X.

Twelve cases of streptococcic throat without rash are shown. With few exceptions the toxemia and general tissue reaction were great, and in several the general condition was distinctly grave on admission. In each of these cases except one

able change in the patient's subjective reaction. There were no deaths in this series and no complications other than those present on admission.

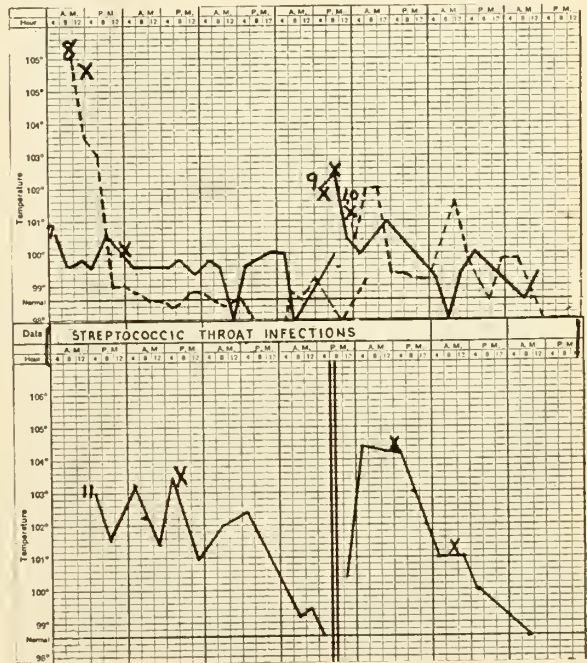


Fig. 2.

Serum was given early in adequate amounts and repeated every twelve hours where indicated. Case 5 was refractory because of a coexisting peritonissillar abscess, but in spite of persistent temperature the patient showed appreciable response to serum as evidenced by subjective improvement.

Scarlet fever as such is rarely a problem in hospital practice. However, an occasional case appears among our nursing staff or in recently admitted patients. Seven such cases are shown. The uniformly prompt disappearance of fever is striking, but still more striking is the disappearance of other objective and especially subjective symptoms. The latter can be expected in six hours after intravenous use of an average dose of serum. There were no complications in this small series. You will notice that Case 12 was completely refractory. In this individual the diagnosis was never established and the only organism recovered from the throat was a staphylococcus.

Because of our consistently good results in streptococcic throat infections we anticipated comparable results in other infections with the same organism. With certain qualifications this has been true: serum has been used in five cases of severe streptococcic tracheitis and tracheobronchitis. Two patients died, Case 36, admitted with bronchial plugging already present, and Case 34, whose aeration was fairly good, but who on admis-

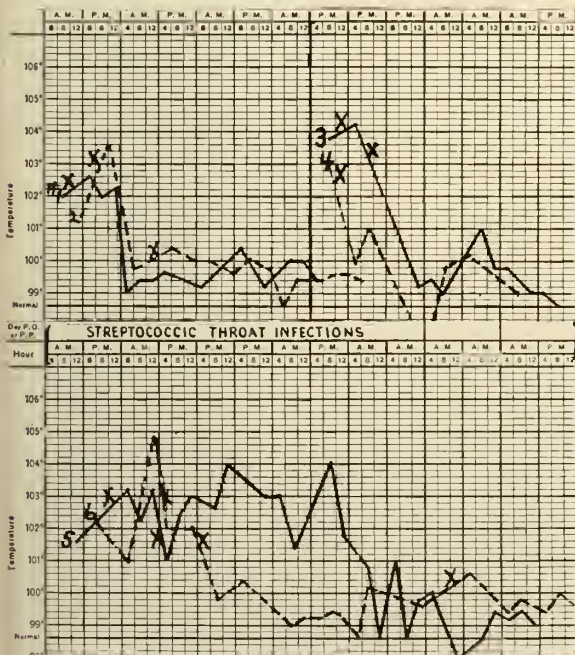


Fig. 1.

there was sharp response to serum within twelve hours as evidenced by fall in temperature, improvement in the throat appearance and a remark-

sion had a total white count of 2,000 cells of an extremely young type. Case 35 showed an initial early response, flared up, was then found to have a coexisting diphtheria and recovered immediately as soon as diphtheria antitoxin was given. The

toneal pus. Both made spectacular recoveries. Case 20 developed postoperative pneumonia and died of empyema following drainage. There was

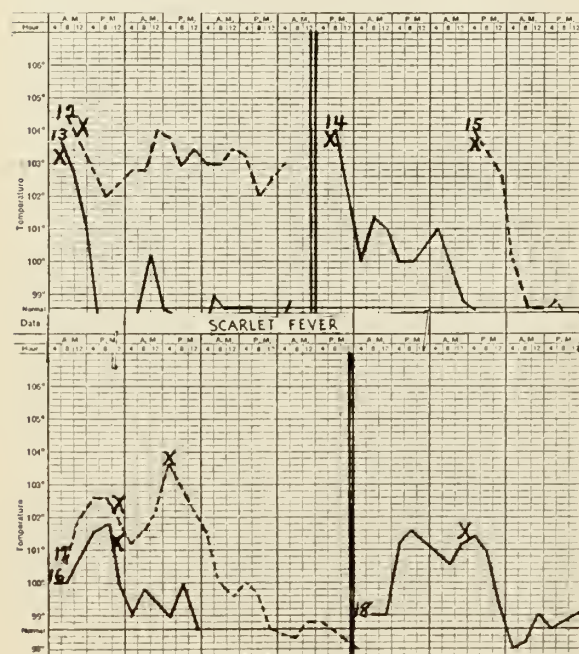


Fig. 3.

other two cases showed a gratifying response to serum. I believe that further experience with this condition will prove that convalescent serum is a great contribution to its control. Since tracheotomy is often necessary on admission it may be that our best use of serum will be in the prevention of troublesome and dangerous postoperative complications.

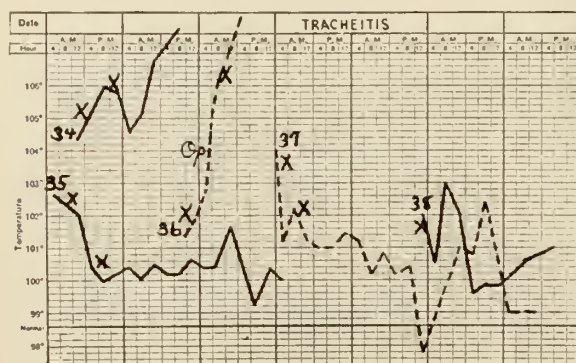


Fig. 4.

Three cases of ruptured appendix with acute peritonitis are shown. Two, Cases 19 and 21, had a coexisting acute tonsillitis. Both showed hemolytic streptococcus and Bacillus coli in the peri-

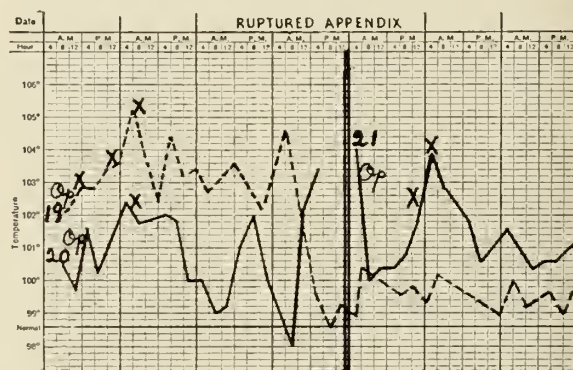


Fig. 5.

no bacteriologic evidence justifying the use of convalescent serum, but I suspect it was given because of the good results obtained in the preceding cases.

Convalescent serum has been used in two cases of unusually severe streptococcic sinusitis. Case

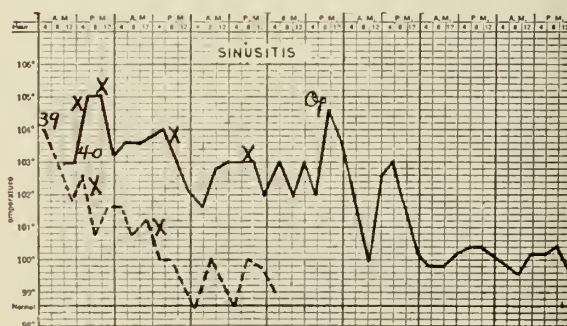


Fig. 6.

40 showed marked subjective improvement after serum but little change in temperature until a complicating septal abscess was drained. Neither patient required sinus surgery.

Case 41 represents a common problem: an early bilateral mastoidectomy with a stormy postoperative reaction. There was prompt response to a

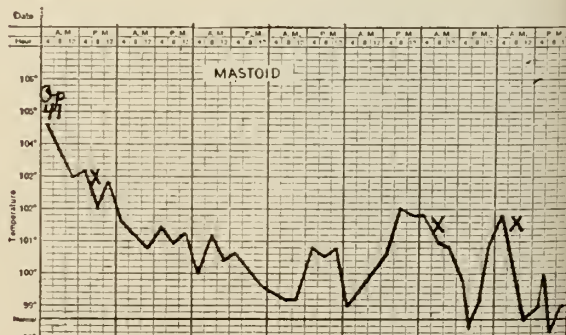


Fig. 7.

single dose of serum. One week later this patient developed a messy bilateral wound infection which subsided promptly after two doses of serum.

Of five cases of otitic meningitis receiving serum, three patients died. Of these three, Case 22 proved to be pneumococcic, Case 24, although

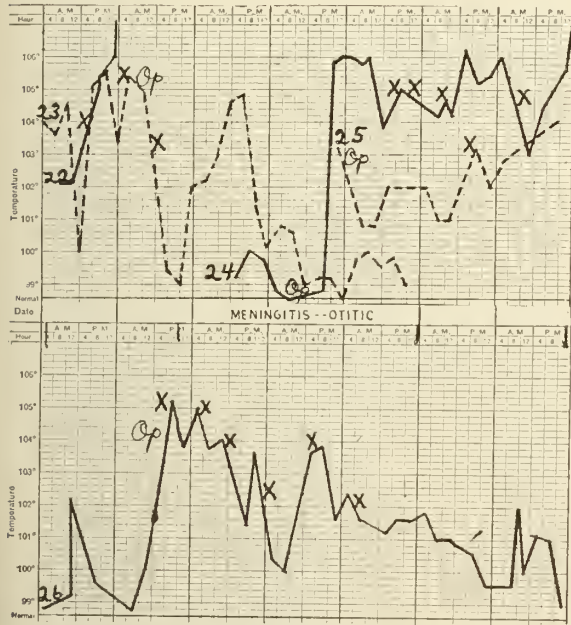


Fig. 8.

streptococcic, proved intractable even with large doses of serum, and Case 25 received too little serum to permit of conclusions. Case 23, in which the meningitis was discovered at operation, recovered, as did Case 26, a diffuse meningitis with Gradenigo's syndrome. All had mastoidectomies.

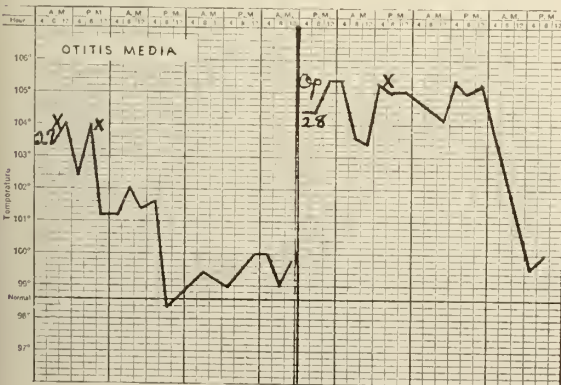


Fig. 9.

We have little reason to use serum in uncomplicated otitis media. However, two contrasting

cases are shown: Case 27 showed prompt response as evidenced by reduction of pain and temperature, both of which had persisted in spite of paracentesis. Case 28 showed no improvement after paracentesis and serum. The temperature was later found to be due to pneumonia.

Five cases are grouped as questionable from the standpoint of logically expected response to serum. In each case serum was used before a diagnosis was made and the subsequent result explained the success or failure obtained. Case 29, ulcerative endocarditis, died; Case 30, infectious mononucleosis, no benefit; Case 31, postinfluenzal bronchopneumonia with otitis, marked improvement; Case 32, pneumococcic pneumonia, no effect; and Case 33, pneumonia, empyema and otitis, pneumococcus Type III, died.

Two cases of lateral sinus thrombosis received serum. Both were well advanced, had had initial mastoidectomy and subsequent exposure and obliteration of the lateral sinus. One had had a jug-

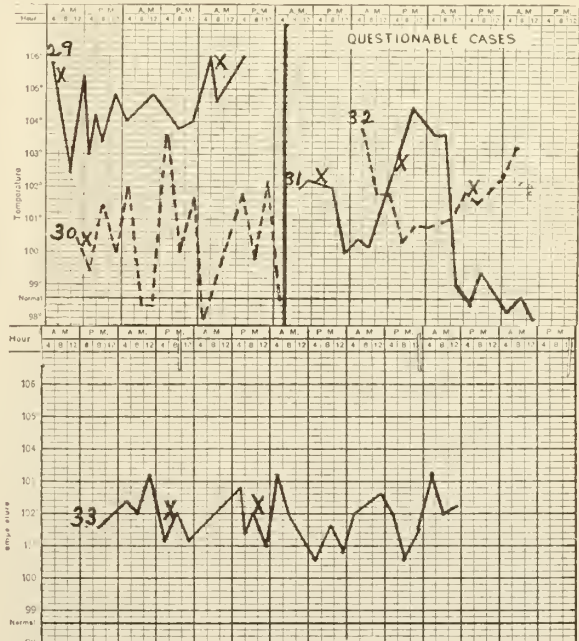


Fig. 10.

ular vein resection and the other ligation. Both had blood cultures positive for hemolytic streptococcus and multiple metastatic abscesses. One received a total of 310 cubic centimeters of serum and the other 240 cubic centimeters. Both recovered completely. Here I believe we have the ultimate test of convalescent serum. While either or both of these patients might have recovered without serum, I doubt it.

This survey is shorter than it might have been if sulfanilamide had not become available. We have used much less serum since the drug appeared and now use it only in those cases which demand immediate aid, heroic treatment, or for those patients who are intolerant to the drug.

I cannot speak too highly of the cooperation we have received from the State Department of Health laboratories. The promptness with which they have supplied us with any required quantity of serum has been limited only by transportation facilities.

It is difficult to restrain one's enthusiasm for convalescent serum, and the temptation is great to expect too much from it. One must remember that it is not a cure-all. It can have no effect on any but streptococcic infections. Although it can sometimes obviate the need of operation, it should be used only as a complement to, not as a substitute for, indicated surgery. Within these limitations, early and sustained administration of convalescent serum will materially reduce morbidity and mortality rates in otorhinolaryngologic infections.

Discussion

Dr. S. A. O'Brien, Mason City: Physicians who have been using convalescent scarlet fever serum are uniformly enthusiastic about the results obtained. As Dr. Treynor has stated, it is not a cure-all, nor does it take the place of surgery, but it is a valuable addition to our past methods of treatment. In a few cases the results are spectacular, in over fifty per cent the results are classed as good, and in some there is no improvement. It can be used safely at the same time sulfanilamide is being given; in fact this is the treatment advised by most of the users. I do not believe it will be used universally in all our streptococcic infections, but it is indicated in all the severe and complicated cases. The earlier it is administered the better the results, especially in preventing complications. As far as I have been able to gather from the literature there are no contraindications to its use, and there are no reactions except an occasional light rash. At the present time there is no reliable test to determine the action of serum against a given strain of organism. Because of this fact, pooled serum gives the greatest hope of success.

At the present time the only place in Iowa we can get convalescent serum is from the State Department of Health. You can phone or telegraph their office and the serum can be delivered any place in the state by bus or train within twelve hours. The charge for the serum is \$1.25 for a ten cubic centimeter vial, or \$2.50 for a twenty cubic centimeter vial. This applies only to patients who are able to pay. The serum is furnished without cost to indigent patients.

TRACHEOBRONCHIAL COMPLICATIONS OF PULMONARY TUBERCULOSIS*†

RALPH C. CARPENTER, M.D., Iowa City

Eppinger¹ in 1881 gave the first complete anatomic description of tuberculous tracheal ulceration, pointing out the tendency for the ulcers to localize in the lower part of the trachea. Despite this excellent description, tracheobronchitis as a complication of pulmonary tuberculosis received scant attention for many years. Only comparatively recently have these complications received much attention in the literature. For a time, reports were on postmortem studies but since the introduction and common use of the bronchoscope, the diagnosis has been made repeatedly during life.

Statements as to the frequency of the complications are variable. Heaf² in 1924 recorded a series of 133 autopsied cases of pulmonary tuberculosis and found tracheal involvement in 44 per cent. Later Minkovsky³ published a study of 2,379 post-mortem cases and found an incidence of 11.5 per cent with tracheal involvement. Bugher, Littig and Culp⁴ found an incidence of 41 per cent in 122 cases of pulmonary tuberculosis which came to autopsy. While tuberculous tracheobronchitis does not appear to be causally related to laryngeal tuberculosis, they tend to be concurrent, so that in their series, 76 per cent of the cases with tuberculous laryngitis also had involvement of the trachea and bronchi. Flance and Wheeler⁵ recently recorded a series of 285 autopsied cases of pulmonary tuberculosis and found gross evidence of tracheobronchial tuberculosis in nine cases or 3.1 per cent. McIndoe and his co-workers⁶ in a routine bronchoscopic study of 272 cases of active pulmonary tuberculosis found active or healed tuberculous lesions in the bronchi in 11 per cent of their cases. Hawkins⁷ also published a similar study of 516 patients; 132 of these showed bronchoscopic evidence of tuberculous tracheobronchitis, while 22 per cent of the patients with bronchial involvement also had tuberculous laryngitis; 50 per cent of the patients with tubercular laryngitis who were bronchoscoped were found to have tuberculous tracheobronchitis. In a group of 93 selected cases, I have noted bronchoscopic evidence of the disease in seventeen or 18.3 per cent. Of these seventeen patients with tracheobronchial tuberculosis, only one had any evidence of tuberculous laryngitis. From these observations, one can conclude that

*From the Department of Otolaryngology and Oral Surgery, University Hospitals and the Bronchoscopic Clinic of the Iowa State Tuberculosis Sanatorium, Oakdale, Iowa.

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the incidence of mucosal tuberculosis is comparatively high especially in those cases that have a manifest laryngeal involvement.

TABLE I
INCIDENCE OF TRACHEOBRONCHIAL TUBERCULOSIS

Author	No. of Cases	Per cent of Tuberculous Tracheobronchitis
Heaf 1924	133 Postmortem	44%
Minkovsky 1929	2,379 Postmortem	11.5%
Bugher, Littig and Culp 1937	122 Postmortem	41%
McIndoe and Co-workers 1937	272 (living) Routine Bronchoscopies	11%
Hawkins 1939	516 (living) Routine Bronchoscopies	25.4%
France and Wheeler 1939	285 Postmortem	3.1%
Carpenter 1940	93 Selected Bronchoscopies	18.3%

Several theories have been advanced in regard to pathogenesis. Bugher, Littig and Culp⁴ were impressed with the tendency for the lesions to occur with greater frequency on the posterior wall of the trachea in patients who have been recumbent for long periods of time, and concluded that the mode of infection of the tracheal and bronchial mucosa was outstandingly one of contact with the bacillus-laden sputum gaining entrance through the mucosa or the ducts of glands. In some instances, they attributed the infection to direct extension from peribronchial structures. Reichle and Frost⁸ believe that infection by implantation is less common than infection by contiguity from diseased lymphatics and lymph nodes of the peribronchial tissues, or by continuity occurring secondarily to an implantation tuberculosis in the lower lobe or in the bronchi draining a tuberculous cavity. From my observations, it would seem that the majority of cases of tracheobronchial tuberculosis are caused by a combination of implantation and by continuity and contiguity of tissues.

A few years ago the diagnosis of tuberculous tracheobronchitis was made only at postmortem examination, but with the recent advances in roentgenology and bronchoscopy, and the renewed interest on the part of phthisiologists, the clinical recognition of the disease is becoming more common. The characteristic clinical signs and symptoms of tracheobronchial tuberculosis are now a part of the diagnostic armamentarium of many physicians. Perhaps the most important single symptom is the asthmatoïd wheeze which is produced by partial encroachment of the mucosal tuberculous lesion on the lumen of the trachea or bronchi. At times this wheeze may be detected by auscultation at the open mouth of the patient. The wheeze, although it varies in intensity, is not

transitory and persists over days, weeks or months. It persists after expectoration; is loudest over the site of the lesion and often transmits vibrations to the palpating hand. It may only be present on exertion or on forced expiration, and thus be missed during quiet breathing. In conjunction with the wheeze, there may be persistent rhonchi; paroxysmal cough with tenacious sputum; dyspnea out of proportion to the vital capacity; constant tendency to clear throat; expectoration of sputum which varies in amount from day to day and persistently positive sputum in spite of quiescent pulmonary tuberculosis; after adequate collapse therapy or with no evidence of parenchymal involvement. A symptom which heretofore has not been stressed is hemoptysis occurring in quiescent or arrested pulmonary involvement. In my study of 93 selected cases I have found that eleven patients presented this symptom and five had bronchoscopic evidence of tracheobronchial tuberculosis.

CLINICAL FEATURES OF TRACHEOBRONCHIAL TUBERCULOSIS

1. Asthmatoïd wheeze
 - A. May be heard by oral auscultation
 - B. Varies in intensity
 - C. Persists for long periods of time, after expectoration
 - D. Loudest at site of lesion
 - E. May transmit vibrations to palpating hand
 - F. May be present only on exertion or forced expiration
2. Persistent rhonchi
3. Paroxysmal cough with tenacious sputum
4. Dyspnea out of proportion to vital capacity
5. Constant tendency to clear throat
6. Marked variation in amount of sputum
7. Persistently positive sputum
 - A. With quiescent tuberculosis
 - B. With no parenchymal involvement
 - C. After adequate collapse therapy
8. Hemoptysis with quiescent pulmonary involvement

Roentgenologically, continuous or intermittent atelectasis of one or more lobes is a very definite indication of bronchial obstruction. During the periods of atelectasis, the wheeze may disappear because of complete bronchial block and recur when a partial lumen is again established. Failure of a cavity to collapse after adequate pneumothorax or failure of pulmonary re-expansion may be a result of obstructing mucosal tuberculosis. I wish to draw attention also to the so-called "tennis-

ball" cavities, because their significance is usually not appreciated. Roentgenographically they are large and round and tend to balloon peripherally, assuming the contour of the chest. They are apparently produced by mucosal disease causing an expiratory check-valve obstruction, which is usually in the secondary or tertiary bronchi. In addition, a narrowed trachea or bronchus shown either with or without opaque oil, cavities with a fluid level, cavities with extensive perifocal reaction, hilar cavities, cavities which appear and disappear or become larger or smaller from time to time, a transient area of infiltration and roentgenologic evidence of recent spread of the disease suggest tracheobronchial tuberculosis.

ROENTGENOLOGIC ASPECTS OF TRACHEOBRONCHIAL TUBERCULOSIS

1. Continuous or intermittent atelectasis of one or more lobes
2. Failure of cavity to collapse after adequate collapse therapy
3. Failure of lung to re-expand after pneumothorax
4. "Tennis-ball" cavities
5. Cavities with fluid level
6. Narrowed trachea or bronchus demonstrated either with or without opaque oil
7. Cavities with extensive perifocal reaction
8. Hilar cavities or hilar infiltrations
9. Cavities which appear or disappear or vary in size
10. Transient area of infiltration of lung parenchyma
11. Recent spread of tuberculosis

The recent contributions of Clerf, Tucker, Myerson and others have refuted the time-worn phrase that bronchoscopy is contraindicated in pulmonary tuberculosis and have demonstrated its value in the recognition and treatment of tuberculous tracheobronchitis. Bronchoscopy is, however, contraindicated in active pulmonary hemorrhage, in severe laryngeal tuberculosis and in far-advanced hopeless pulmonary involvement. Recently the statement was made that bronchoscopic examinations will soon be recognized as the standard procedure to be performed in cases of pulmonary tuberculosis. I am not in accord with this statement and feel that bronchoscopic examination should be reserved for those patients who present definite clinical or roentgenologic evidence of tracheobronchial complications or for other specific indications. I have not noted any deleterious effects of bronchoscopy in patients with active pul-

monary tuberculosis which is in accord with the observations of others.

Bronchoscopically, several types of lesions may be recognized. Perhaps the best classification is that propounded by McIndoe and his co-workers⁶ who describe five types of involvement: namely, the diffuse or circumscribed submucosal type; the tuberculoma; the ulcerative or mucosal type; the fibrostenotic type which is probably the result of the healing of an ulcerative lesion; and the ulcerostenotic type which represents an intermediate stage between the ulcerative and fibrostenotic types. The submucosal lesion may appear as a flattened infiltration in which one may at times see discrete tubercles. The mucosa over the area of infiltration is edematous, hyperemic and bleeds easily but is intact. At times there may be difficulty in distinguishing this type from a nonspecific infection of the trachea or bronchi. If sufficient infiltration is present, a soft stenosis may be produced. Submucosal tuberculosis is relatively less active than the ulcerative type and usually heals with adequate control of the pulmonary disease. In healing there is much less tendency to produce fibrosis than is seen in the healing of the ulcerative lesion. Occasionally these submucosal lesions become hyperplastic and form a tuberculoma which may partially or completely obstruct a bronchus. The mucosa over these tuberculomas may be either intact or ulcerated. This type of lesion has a tendency toward increased growth and deserves active treatment. The third or ulcerative type may appear as a very shallow superficial ulceration or may extend outward to the cartilaginous rings. The surface of the ulcer is frequently covered with a whitish membrane which can be easily removed. Granulation tissue is prone to occur on the base of the ulcer and may be exuberant enough to produce partial bronchial obstruction similar to that produced by tuberculomas. Ulcerative lesions are always potentially serious and frequently progress after the pulmonary infection is controlled. Spontaneous regressions of these ulcerative lesions have been noted but cannot be predicted. Divergent opinions have been advanced regarding the advisability of collapse therapy in the presence of active ulcerative lesions. Most authors conclude that major collapse therapy is not recommended unless the ulceration is stationary or regressing, or unless local treatment of the mucosal disease is practical. Kernan⁷ raises the question as to whether or not pneumothorax and other methods of treatment designed to put the lung at rest do not promote the appearance of ulcers, since the lung at rest no longer has a powerful cough to clear the bronchus of sputum with the result that

sputum contacts the mucous membrane for longer intervals, thus increasing the opportunity for invasion. I have had the opportunity of following several patients bronchoscopically after pneumothorax or thoracoplasty and cannot incriminate these procedures in the production of tracheo-bronchial tuberculosis. The fourth or fibrostenotic type is the result of the healing of the ulcerative or submucosal lesion. The ulcerative type, however, is more prone to produce fibrostenosis than is the submucosal type. On bronchoscopic examination these cases may show a narrow or almost completely closed bronchus. The location and degree of obstruction produced are important. The clinical symptoms will depend upon the presence or absence of cavities beyond the stricture or whether or not these cavities are infected. If infected, these cases will present all the symptoms of an undrained lung abscess. The retention of infected secretions distal to the area of stenosis may result in bronchiectasis. It may be well to mention that stenotic areas may also be produced by a pressure from diseased and enlarged mediastinal lymph nodes. The fifth or ulcerostenotic type presents the symptoms and bronchoscopic evidences of the ulcerative and stenotic lesions.

Diverse opinions have been expressed regarding the feasibility or advisability of treatment. It is generally concluded that the submucosal type of infection tends to heal spontaneously with adequate control of the pulmonary disease and, therefore, should not be actively treated. However, if there is a marked infiltration, a soft stenosis may result and render therapy necessary. Tuberculous have little tendency toward regression and should be removed either with diathermy or punch forceps and the base cauterized with diathermy or some other suitable caustic. In regard to the ulcerative group, most are in accord that active treatment is advisable unless the physical condition of the patient is such as to render the procedure harmful. Recently Myerson¹⁰ has stated that ulcerative lesions usually heal spontaneously and those that do not heal spontaneously will not heal under any kind of treatment. It is true that there is a general tendency for these ulcerative lesions to heal but it is also true that they have a tendency to spread. If they heal under these conditions, the resulting contraction by fibrous tissue may produce a serious stenosis.

Several methods of treatment are employed at the present time. Probably the most common is the application of silver nitrate. Some authors recommend solutions of not more than five per cent concentration, while others have recommended solutions of a concentration up to thirty per cent. We

first used ten per cent silver nitrate but recently have felt that our results have been better with a concentration of twenty per cent. Following the application of the silver nitrate, the excess is neutralized with normal saline. Others are employing the high frequency electrocoagulating current with success, but some authors feel that the diathermy tends to produce excessive fibrosis and is certainly wrought with more hazard than is the application of silver nitrate. Recently Myerson¹¹ has advocated the use of quartz light intrabronchially by means of a special applicator and has reported excellent results in both the ulcerative and submucosal types. Roentgen irradiation has been used but is apparently valueless.

The fibrostenotic group presents the greatest difficulty in treatment. They constitute the intermediate and end results of all large lesions of the trachea and bronchi, and may result from both the ulcerative and submucosal types of infection. The damage done by this type depends upon the location of the stenosis. Dilation by means of bronchial dilators has been attempted but in many cases has been of no avail. During the intermediate healing stage it is generally concluded that active dilation should not be done except under exceptional circumstances because of the danger of activating the tuberculous lesion. At times the stenosis is so firm that it resists all attempts at dilation. Fibrous stenosis of the trachea is obviously of serious import and may result in various degrees of respiratory obstruction.

BRONCHOSCOPIC STUDIES

Since July, 1938, all patients at the Iowa State Tuberculosis Sanatorium at Oakdale who presented clinical and roentgenographic evidence of tracheobronchial tuberculosis were subjected to a bronchoscopic examination. In addition, bronchoscopic examinations were performed on all patients before any major collapse therapy was undertaken, upon patients with bronchiectasis, with pulmonary diagnostic problems, neoplasms, etc. A total of 137 bronchoscopies have been done on 93 patients. Several of the patients with tracheobronchial tuberculosis or bronchiectasis have had several bronchoscopic examinations. Of these 93 patients, 17 or 18.3 per cent presented bronchoscopic evidence of tuberculosis of the major bronchi. Table II is an analysis of the indications for bronchoscopy and the incidence of tracheobronchial tuberculosis.

Two cases of mucosal tuberculosis were encountered in 25 patients who were bronchoscoped before major collapse therapy. The predominating clinical indication for bronchoscopy was a positive

sputum with quiescent pulmonary disease or with adequate collapse therapy. However, only two cases of tracheobronchial tuberculosis were found in 20 patients who were bronchoscoped for this indication. It would seem, therefore, that collapse therapy probably is not a great factor in the pro-

TABLE II
INDICATIONS FOR BRONCHOSCOPY AND INCIDENCE
OF TRACHEOBRONCHIAL TUBERCULOSIS

	No. of Cases	Tuberculous Tracheobronchitis
Before collapse therapy	25	2
Wheeze	17	6
Positive sputum with quiescent pulmonary disease or adequate collapse	20	2
Profuse expectoration with variability of sputum	9	..
Hemorrhage with quiescent pulmonary disease	11	5
Stationary pulmonary disease	5	..
Tuberculous suspect	2	..
Atelectasis	2	1
Dyspnea	1	1
Tumor	1	..
TOTAL	93	17

duction of tracheobronchial complications. The greatest incidence of mucosal tuberculosis was noted in patients with hemoptysis in the face of quiescent pulmonary disease. Of eleven such patients, five presented bronchoscopic evidence of tracheobronchial tuberculosis. Wheeze was a prominent symptom in seventeen cases and six were found to have mucosal tuberculosis. Nine patients with profuse expectoration and cough were found to have bronchiectasis. However, no evidence of tracheobronchial tuberculosis was found in this group.

TABLE III
ANALYSIS OF BRONCHOSCOPIC FINDINGS

	No. of Cases	Degree of Tuberculous Tracheobronchitis		
		Advanced	Moderate	Mild
Submucosal	3	1	1	1
Ulcerative	7	1	3	3
Fibrostenotic	4	3	..	1
Ulcerostenotic	2	1	..	1
Healed	1	1	..	..
TOTAL	17	7	4	6

Table III is an analysis of the bronchoscopic findings of seventeen cases of tracheobronchial tuberculosis. Ulcerative lesions were encountered in seven patients of which one was classified as far advanced; three showed moderate involvement and three had minimal involvement. Submucosal

tuberculosis was found in three patients, fibrostenotic lesions in four patients; ulcerostenotic lesions in two patients, and one patient showed a healed lesion in one bronchus. Since the majority of these patients were classified as cases of far advanced pulmonary tuberculosis, it would seem that tracheobronchial tuberculosis was more prone to occur in conjunction with extensive pulmonary involvement which is in accord with the observations of others.

Local treatment was used only in the ulcerative type of involvement, the treatments consisting of repeated cauterizations of the lesions with 20 per cent silver nitrate. Table IV is an analysis of the results of treatment. Since this is a small series, no definite conclusions can be made regarding the value of intrabronchial therapy. In the majority of cases, cauterization seems to have little effect on

TABLE IV
RESULTS OF TREATMENT

Case	Degree of Involvement	Result
1	Advanced	Lesion persisted in spite of repeated cauterizations.
2	Moderate	Partial regression of lesion for short time but reappeared.
3	Moderate	No effect.
4	Moderate	Cauterized once. With arrest of pulmonary lesion, lesion in bronchi disappeared.
5	Mild	Cauterized twice; sputum permanently converted.
6	Mild	Cauterized once; no further positive sputum or hemorrhage.
7	Mild	Several cauterizations but lesion tends to remain stationary.

the healing of the ulcerative lesions. In this small group of cases, no benefit from cautery was noted in advanced or moderate degrees of involvement. However, in mild degrees of involvement, the treatment appears to be of some benefit. In a future study of a larger group of cases, I hope to analyze this phase of tracheobronchial tuberculosis more accurately. Some authors have a pessimistic attitude toward any attempt at local treatment while others conclude that local treatment is of some value. From the results obtained in the small group of cases, intrabronchial therapy certainly seems to be of little value except in patients with a mild degree of involvement.

CONCLUSIONS

1. Tracheobronchial tuberculosis occurs commonly as a complication of pulmonary tuberculosis but is more prone to occur in far advanced cases.

2. Bronchoscopy is of value in pulmonary tuberculosis in the diagnosis of the various types of tracheobronchial complications but is of little value in the treatment except possibly for those

cases that have a mild degree of ulceration of the bronchial mucous membrane.

3. Asthmatic wheeze and hemoptysis occurring in patients with quiescent pulmonary tuberculosis are the two most important clinical findings in tracheobronchial tuberculosis.

4. No deleterious effects from bronchoscopy have been noted in patients with active pulmonary tuberculosis.

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Discussion

Dr. T. R. Gittins, Sioux City: My discussion of this fine, well prepared paper will be brief, because I have had no experience either in the diagnosis or treatment of tracheobronchial tuberculosis. My experience, even with laryngeal involvements is meager in private practice, as I suppose it is with most otolaryngologists who are not associated with a sanitarium. During the two years I was in Dr. Dean's department in Iowa City, we did see many cases of laryngeal tuberculosis, but in those days bronchoscopic examination or treatment was considered inadvisable and positively contraindicated in most instances. Therefore, we could only imagine or assume that lesions similar to those present in the larynx might also be present lower down in the tracheobronchial tree. It was our feeling in those days that progress of the laryngeal lesion did act as an indicator of the progress of the lesions in the lungs. Clinically, this relationship seemed to be definite, therefore we made a determined effort to alter the pathologic process in the larynx by curettage and cautery. I have gathered from Dr. Carpenter's paper that he feels at this time, that efforts to control tracheobronchial tuberculous pathology offer very little more than was obtained in earlier days by similar efforts directed to the lesions in the larynx. Naturally, no great enthusiasm can be generated in the minds of internists, as to the value of bronchoscopy, if only diagnostic evidence of the type of bronchial involvement is added to the already typical clinical picture, and nothing definite is suggested which will help with the treatment.

Practically, from my limited experience with bronchoscopy in the diagnosis and treatment of les-

ions of non-tuberculous origin, I am interested in the possibilities of relieving early atelectasis and the possible prevention of secondary bronchiectasis. I would like to ask Dr. Carpenter if he will say a few words in his closing remarks about his apparent lack of enthusiasm concerning the possibilities of bronchoscopic aspiration in instances of obstructive atelectasis. Is it because the pathology responsible for the mechanical obstruction of a bronchus with atelectasis in tuberculosis is usually a gradual stenosis of the bronchus rather than more acute obstruction by plugs of mucus or infected material, as is so commonly seen in non-tuberculous involvements? This point is really covered satisfactorily in the paper, but I am asking the essayist to touch on it again in closing, because to my mind any procedure which might relieve atelectasis and do something to prevent bronchiectasis would be a distinct addition to the more standardized methods of treatment of pulmonary tuberculosis.

The historical data concerning the progress of investigations as to the prevalence, types and possible treatment of tracheobronchial tuberculosis, are of definite scientific interest. However, I feel sure that the members of this group are more genuinely interested in and appreciative of Dr. Carpenter's frank opinion as to the possibilities of diagnosis and treatment by bronchoscopy, based upon his own personal experience with a goodly number of patients in our own state institution.

FULL TERM PREGNANCY IN THE BROAD LIGAMENT*

ARLINE M. BEAL, M.D., Davenport, and
NELLIE S. CASSELL, M.D., Guntur, South India

A Hindu woman from the Kamma caste was admitted to the hospital on the afternoon of December 11, 1932. She was a coolie, about forty or forty-five years of age, and came from a small village sixteen miles distant. Her chief complaint was severe intermittent pains in the abdomen for the past six days.

About six months before admission the patient had had such pain in her abdomen on the lower right side, accompanied by severe constipation, that she went to our wayside ambulance or traveling dispensary car. She had been suffering with occasional slight pain for two months following two very scanty menstrual periods. She claimed the medicine given to her had relieved her pain and constipation and therefore she did not return to the wayside dispensary or come to the main hospital for admission. Since that time, her periods had been fairly regular but somewhat scanty. She was not conscious of having passed any masses, clots or membranes. There had been practically no pain since the severe attack but the abdomen

*From the Department of Gynecology and Obstetrics of Kugler Hospital, Guntur, South India.

had been gradually increasing in size. The patient believed she was pregnant in spite of her regular periods.

Her pains on admission had begun six days previously and she thought herself in labor. When no child was born at the end of four days, she had sent for a native midwife (hereditary dai) who examined her and told her she was not in labor. The patient waited another day but the pains were getting unbearable, and the next day she started for the hospital, walking sixteen miles. At times the pains were so severe she had to sit on the roadside to rest. The urine had been scanty and the extremities had been swollen for four months.

Four previous pregnancies had been normal, delivered at home, the last some twenty years before this illness. The first two children died during a smallpox epidemic; the third child died at the age of eight years, following a severe burn. Except for pregnancies, periods had always been regular every lunar month, lasting four or five days. The patient denied any venereal infection or previous pelvic pain.

On admission, her general condition and nourishment were fairly good. Temperature was 98 degrees, pulse 96, and respirations 24 per minute. The lower extremities were markedly swollen. Abdominal examination gave the impression of a full term pregnancy. The "fundus" was three fingers below the ensiform cartilage, with the breech in this position, the back to the left side anteriorly and the head on the left side of the lower abdomen, but not engaged. Another mass about the size of a large grapefruit was on the right side of the lower abdomen, and was contracting vigorously. This mass was very tender. The fetal heart beat was good, 140 per minute and heard well in both lower quadrants.

Vaginal examination showed the perineum to have an old second degree laceration. A large round hard mass was bulging into the left fornix and posterior cul-de-sac. It seemed to be an occiput with the vaginal wall stretched over it as a paper-thin membrane. The cervix was high in the right fornix and flattened like two thin septums, both lying parallel in an anteroposterior diameter and pressed against the vaginal wall on the right side. Bimanual examination showed the contracting mass on the right to be a uterus about the size of a four month's pregnancy. The unborn child appeared to be free in the membranes in the abdominal cavity. Rectal examination merely confirmed our diagnosis.

Laboratory findings showed the hemoglobin to be 60 per cent by the Sahli method. A catheter-

ized specimen of urine showed an acid reaction, a specific gravity of 1.010, a cloud of albumin, moderate sugar and slight pus. Numerous ascaris ova were present in the stool.

While the operating room and the patient were being prepared, the records from the wayside car were consulted and it was found that the patient had been examined on July 26. Her complaint then was abdominal pain and constipation. On abdominal examination, a hard mass extending to the umbilicus, fixed in the left side, was found. Vaginal examination revealed the cervix to be soft and blue with a bilateral laceration. The fundus of the uterus was anterior to the mass and only slightly enlarged, the mass being posterior to and left of the uterus. The diagnosis of an "ovarian tumor or ectopic pregnancy" was made at that time by the L.M.P. (Licensed Medical Practitioner) and a note made that the patient was advised to have an early operation.

Under chloroform anesthesia, a left paramedian incision was made from the umbilicus to the symphysis. A full term child was found in the left broad ligament, the ligament being stretched over the child and the uterus pushed to the right. On removing the child, the left foot was found to have pierced the broad ligament posteriorly and it therefore was dissected out from the bands of muscle of the broad ligament. The constriction had caused the foot to be deformed and very much smaller than the right. The placenta was very irregular. It was removed with considerable difficulty from the inner surface of the broad ligament. Because of the profuse bleeding, the incision in the broad ligament was partially closed and the edges of the opening were sutured to the abdominal wall for drainage. The abdominal wound was then closed in layers, leaving the small opening for drainage. The baby gasped a few times and then died. Resuscitation was not successful.

Recovery was uneventful, except that the sinus formed by marsupialization drained for several months. Albumin and pus were present in the urine for about one month, but the urine was normal when the patient was discharged during the latter part of January. (Because there would be no way for the patient to have proper care in her own home, she was kept longer than she would have been in America.)

The pathologic report was as follows: the placenta was in pieces; membranes were absent except for small pieces; and the total weight of the pieces was one pound three ounces. The child was a male, full term, weight seven pounds, length nineteen inches. Areas of the child's body were

macerated. The left foot was constricted about two inches above the ankle and the foot and ankle deformed and much smaller than normal.

When the patient was discharged the uterus was slightly larger than normal and rotated somewhat to the right but fairly moveable. There was very slight fullness and tenderness in left fornix. The abdominal wound was well healed except for a small draining sinus. The patient returned a few times in January to the Wayside Clinic, but was not seen again until March when the wound was found to be well healed. Two years later she came again "just to visit." Her general health had been good, and there had been no further pregnancies.

THE FINLEY HOSPITAL CLINICO- PATHOLOGIC CONFERENCES

ASSOCIATED CHOLECYSTITIS AND CORONARY THROMBOSIS

DONOVAN F. WARD, M.D., Dubuque

The clinical recognition of coronary thrombosis is of comparatively recent origin in this country. This is likewise true of the appreciation of the incidence of cholecystitis and cholelithiasis. Furthermore, the frequent association of the two conditions not only presents clinical problems in their differential diagnoses but also brings up the question of an etiologic relationship between them. The case to be presented is of interest because both conditions were present. In order to determine if there was some relationship in the etiology of the two diseases, other cases of coronary and gallbladder disease in our series of necropsies were studied with this point in mind. The recent literature on the subject has also been briefly reviewed.

CASE REPORT

Chief Complaint: The patient, an obese white man fifty-nine years of age, was seen at his home because of "excruciating pain in the pit of the stomach and nausea following a heavy meal."

Past History: For several years the patient had had attacks of indigestion which were usually relieved by belching, bicarbonate of soda or occasionally by vomiting. He had also learned to avoid greasy foods which aggravated the indigestion. Two years before the illness to be reported, following an especially severe attack with pain which was only relieved by a hypodermic of morphine, he became jaundiced. This lasted about a week and at that time a diagnosis of gallstones was made and operation was advised but refused.

Since that time aside from the indigestion he had been fairly well although he had noticed that he became short of breath on moderate exertion.

Present Illness: The evening before admission he attended a banquet and retired about 11:30 feeling well. About 2:30 in the morning he was awakened with intense pain in the epigastrium and some nausea. He took bicarbonate of soda and applied a hot water bottle to the upper abdomen without relief. He was first seen two hours later and at that time, with his past history in mind, a diagnosis of gallstone colic was made, although he was not jaundiced. His blood pressure was 150/90; the pulse was 80 per minute and slightly irregular in rate and force. He was given one-fourth grain of morphine and obtained relief after one-half hour. He was seen again four hours later when he was free of nausea, but a dull pain, now referred to the cardiac area as well as the epigastrium, was the chief complaint. The blood pressure was 125/85 and the heart sounds were distant. A distinct friction rub was heard over the precordium. The pulse varied considerably in rate, rhythm and force. The lips were cyanotic; his face had an ashen color and the forehead was covered with perspiration. A diagnosis of coronary thrombosis was then made and he was advised to enter the hospital but refused. The patient died with signs of pulmonary edema approximately ten hours after the onset of symptoms.

Autopsy Abstract: The body was that of a markedly obese, white man estimated to weigh 220 pounds. There was very advanced arteriosclerosis and a fresh thrombus was found just at the bifurcation of the left coronary artery. There was a circular reddened area, approximately five centimeters in diameter involving the wall of the left ventricle. Over this area the epicardium appeared dry and granular. The heart was moderately hypertrophied and weighed 515 grams. The gallbladder was almost completely filled by small faceted stones and the wall was moderately thickened by fibrous tissue. The mucosa was rough and granular. The lungs were acutely congested and dripped frothy, serous fluid. The other organs were essentially normal.

Anatomic Diagnosis:

Primary:

1. Coronary thrombosis with infarction of the left ventricle; pulmonary edema.
2. Obesity; arteriosclerosis.

Subsidiary: Chronic cholecystitis and cholelithiasis.

Comment: Not so long ago this case would have been typical of that group in which the cause

of death was termed "acute indigestion." Today many of these cases are demonstrably instances of coronary thrombosis; a few are due to upper abdominal conditions such as cholecystic disease, perforated gastric ulcer or acute pancreatitis. At the onset, the attack was more characteristic of biliary colic than coronary disease. No doubt a knowledge of the patient's past history influenced us in making that diagnosis. A few hours later, with the patient in shock, obviously greater than seen in biliary colic, with pain referred to the cardiac area, with the pulse weak and irregular, the presence of a pericardial friction rub and the blood pressure having fallen, coronary thrombosis was diagnosed. The clinical diagnosis was confirmed at necropsy.

GENERAL DISCUSSION

Although much of our knowledge of the clinical manifestations of the two conditions has been accumulated in the last twenty years, they have been abundantly discussed in the literature. Many of the earlier articles were concerned with their differential diagnoses. Today because of the more general utilization of electrocardiograms and cholecystograms their differentiation has been simplified. Without minimizing the clinical problems presented in so doing it may be said that today the alert clinician can make a correct diagnosis in most instances. More lately the literature has been concerned with the association of the two conditions as well as with a possible etiologic relation between them.

A number of clinicians^{1, 2, 3 and 4} have called attention to changes in the heart during attacks of gallbladder disease and to the benefits in the heart condition following the removal of the diseased gallbladder. The evidence presented is inconclusive and many believe that the improvement noted is probably due to the rest following operation and corrections in diet and habits of living. Probably the question is fundamentally concerned with the etiology of arteriosclerosis. Breyfogle⁵ in a statistical analysis of 1,493 necropsies concluded that there was a "striking and positive association regardless of age or sex between gallbladder disease and coronary artery disease."

With this in mind we analyzed our series of 705 necropsies. There were 121 cases (17 per cent) of gallbladder disease and gallstones were present in 81 per cent. Fifty of the cases occurred in men and 71 in women. Ninety-five per cent had arteriosclerosis of a variable degree. There were 19 instances in which old or recent coronary thrombi were associated with gallbladder disease. Fifteen of these were males and four were females.

In the entire series there were 38 other cases of coronary thrombosis without gallbladder disease, 26 males and 12 females. In addition there were 20 instances of coronary arteriosclerosis with myosclerosis (twelve males and eight females) unassociated with gallbladder disease.

If there is a common etiologic factor for cholecystitis and coronary disease it is logical to expect women with their high incidence of cholecystitis and cholelithiasis to have coronary thrombosis more often than men. In our statistics, the two conditions coexisted in men fifteen times and in women only four times. Furthermore, of the 58 other cases of coronary disease unassociated with cholecystitis the ratio was 38 men and 12 women. While our series is too small to be conclusive it indicates that the coexistence of the two conditions is incidental. The great majority of our patients had arteriosclerosis and it seems more likely that the same factors, whether infection or a change in lipoid-cholesterol metabolism, which cause it are also important in producing cholelithiasis. If in a series of coexisting gallstones and coronary disease, definite improvement in cholesterol metabolism can be demonstrated after cholecystectomy, the proponents of a common etiology would be on firmer ground. As far as known such a study has never been made.

From a practical viewpoint it should be recognized that the degenerative diseases, which include the conditions under discussion, are more likely to become evident in sedentary middleaged men and women if they consume an excessive diet, or in other words if they are overweight. Therefore the axiom so often repeated to diabetic patients: "what you add to the waistline you take off the life line" is also applicable to a certain degree in the case of arteriosclerosis, gallstones and coronary disease. The middleaged patient must avoid overweight and should have some form of regular exercise in order completely to consume the intake of food. This demands the development of the will power to regulate the living habits and to control some of the seductive enjoyments of eating and drinking that are often all too easily attained, at least in this country.

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STATE DEPARTMENT OF HEALTH

Walter L. Biering

PREVALENCE OF POLIOMYELITIS

Reported Incidence in 1940

More cases of poliomyelitis than usual are being reported in Iowa at this time. Reported cases to date (August 17) for this year total 95. Table I shows the occurrence of the disease during the first eight months of 1940 (through August 17).

TABLE I
Poliomyelitis in 1940

Month	Actual Number	Expected Number
January	12	1
February	7	1
March	1	1
April	1	1
May	2	1
June	5	1
July	21	3
August (through Aug. 17)	46 (entire month)	14
Total Cases	95	23

The figures in the second column of the above table are the yearly average of reported cases for the decadal period 1930-1939. These figures not only represent the average annual experience for the past decade, but also the probable or expected number of cases for this and immediately succeeding years.

The cases reported in January and February of this year (nineteen in number) are to be associated with the 1939 season rather than that of 1940. Unusual prevalence in 1940 began to be manifested in June when five cases were reported, the expected number for that month being only one case (Table I).

Many widely separated counties of Iowa have reported one or two cases of poliomyelitis since June of this year. As usual, however, certain counties have had an undue share of cases. Bremer county, from which only seven cases had been notified during the ten-year period 1930-1939, reported thirteen cases in July and August (through August 17 of this year). Similarly Woodbury county, which had not experienced unusual prevalence since 1930 when twenty-four cases were notified and 1937 when ten cases occurred, reported twenty cases in July and through August 17. Black Hawk county, which during the past

decade had an average of three cases annually, reported six cases in July and through Saturday, August 17.

Reported Incidence in Previous Decade

Table II records total reported cases of poliomyelitis for the past decade.

TABLE II
Poliomyelitis in Iowa, 1930-1939

Year	Reported Cases	Counties Reporting
1930	222	59
1931	172	37
1932	51	29
1933	45	29
1934	36	24
1935	65	39
1936	76	27
1937	240	71
1938	40	29
1939	197	38
Total 1930-1939	1144	

It will be noted that although the disease showed sporadic occurrence during some years, more than the average number of cases occurred in 1930, 1931, 1937 and again in 1939. In 1930, abnormal prevalence of poliomyelitis was noted in the following areas of Iowa:

Northwest—Cherokee, 7 cases; Dickinson, 3; Emmet, 4; Ida, 5; O'Brien, 6; Osceola, 3, and Woodbury, 24.

Southwest—Adams, 3; Cass, 5; Montgomery, 3; Page, 3, and Pottawattamie, 4.

South Central—Decatur, 6 cases.

Central—Dallas, 4; Greene, 4; Guthrie, 5; Jasper, 8; Marshall, 12, and Polk, 29.

Northeast—Black Hawk, 19 cases.

East—Scott, 5 cases.

In 1931, poliomyelitis was unusually prevalent in localities as follows:

North Central—Cerro Gordo, 7; Kossuth, 5.

Central—Story, 6; Iowa, 4.

East and Southeast—Cedar, 3; Clinton, 3; Jackson, 3; Johnson, 6; Linn, 11; Muscatine, 4; Scott, 4; Des Moines, 54; Lee, 8, and Washington, 11.

In 1937, more than the expected number of cases occurred in the following widely separated counties: Adair, 3; Benton, 3; Boone, 3; Clinton, 5; Decatur, 3; Des Moines, 8; Dubuque, 4;

Greene, 4; Grundy, 4; Hamilton, 4; Harrison, 5; Ida, 6; Jasper, 3; Keokuk, 5; Montgomery, 6; Page, 3; Polk, 33; Pottawattamie, 11; Sioux, 11; Van Buren, 3; Wapello, 5; Webster, 8; Woodbury, 10; Worth, 4, and Wright, 4.

In 1939, poliomyelitis cases were reported from counties in all parts of the state, but unusual prevalence developed in the following counties in Central Iowa: Dallas, 8 cases; Jasper, 5; Madison, 26; Marion, 11; Monroe, 5; Polk, 74; Union, 7.

Cases and Rates by Counties, 1930-1939

The accompanying map (Fig. 1) presents information regarding the cumulative incidence of poliomyelitis during the decadal period, 1930-1939.

The figure in the upper half of each county represents the total cases as reported for the ten-year period. The figure in the lower half is the average annual rate per 100,000 population. Counties with average annual rates below five per 100,000 remain unshaded; shaded counties are those with rates between five and ten per 100,000. Decatur, Des Moines and Polk counties showed average

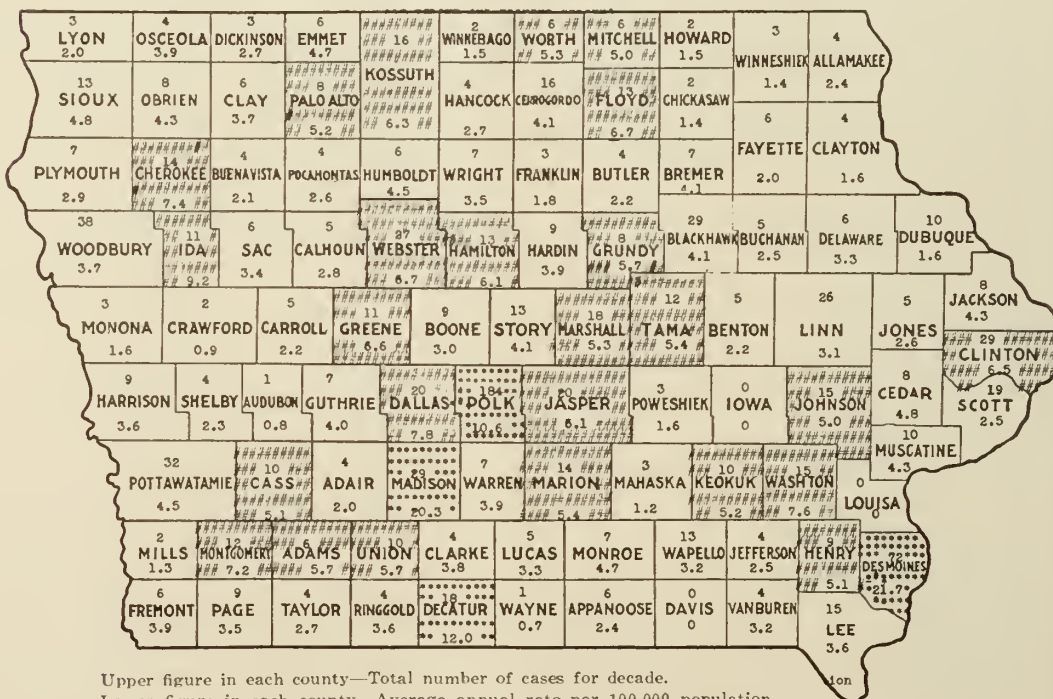
annual rates of over ten per 100,000. The fact that several counties reported no cases in ten years, or unusually low rates, is probably due to incomplete reporting.

PREVALENCE OF DISEASE

	July '40	June '40	July '39	Most Cases Reported From
Diphtheria	5	19	9	For State
Scarlet Fever	56	103	58	For State
Typhoid Fever	10	7	23	Clinton, Tama, Black Hawk, Cherokee, Davis, Des Moines, Franklin
Smallpox	30	32	53	Pottawattamie, Des Moines, Johnson, Polk
Measles	305	487	271	Dubuque, Cedar, Scott
Whooping Cough	161	126	136	Dubuque, Black Hawk, Johnson
Brucellosis	30	25	18	For State
Chickenpox	43	114	46	Woodbury, Boone, Webster
German Measles ...	7	84	14	For State
Malaria	9	27	20	Dubuque, Des Moines, Palo Alto
Mumps	125	233	42	Linn, Black Hawk, Woodbury, Floyd
Poliomyelitis	21	5	1	Woodbury, Bremer, Adams, Buchanan, Butler, Calhoun, Clay, Humboldt, Jasper, Linn, Tama
Rocky Mountain Spotted Fever ...	4	1	6	For State
Tuberculosis, Pulmonary	28	73	82	For State
Gonorrhea	177	111	163	For State
Syphilis	256	168	255	For State

POLIOMYELITIS IN IOWA—1930-1939

Showing distribution according to counties, of 1144 cases reported during the decadal period.



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POLIOMYELITIS SEASON HERE AGAIN

Up to August 17, a total of 95 cases of poliomyelitis in Iowa had been reported to the State Department of Health. Thus another season, welcome in so many other ways, has arrived to bring uneasiness to the hearts of many parents. No one can deny the tragedy of a strong-limbed robust boy or girl falling victim to this dread disease. Even the rumor that a case exists in the neighborhood is sufficient to cause a deluge of frantic calls to the physician for information as to what can be done.

And what can the physician say? In the first place he has to confess that no effective prophylactic measure is available. Nose sprays of various solutions have been tried and found wanting. Injections of convalescent serum into exposed children are of questionable value. The physician can, however, point out that the disease is one of a low level of communicability, and that the occurrence of a second case from a known first case is infrequent. Furthermore, he can explain that children are constantly subjected to even greater risks from other directions, which cause little or no parental concern. For instance, last year in Iowa there were 197 cases of poliomyelitis with thirty deaths. Twelve of the deaths were in the age period of five to fourteen years. At the same time there were 1,827 deaths from accidents, 122 of which occurred in the same age group; yet how few parents are deterred from embarking on a Sunday afternoon automobile outing through fear of disaster. Pneumonia last year accounted for the deaths of 258 children under fourteen years of age, and yet this disease with a mortality rate eight times greater than that of poliomyelitis excites far less newspaper publicity

and parental alarm. However, there is still another way of looking at the situation. The child population of Iowa is estimated at nearly 700,000; thus the 197 cases of poliomyelitis which occurred in 1939 give a ratio for that year of 1:3548. Even in communities where a brisk epidemic prevails, the risk of any one child contracting poliomyelitis is not much greater than 1:1000.

Such statistics as these mean little to the family unfortunate enough to have been visited by poliomyelitis, but for those parents who live in constant terror lest their children too become victims, a certain amount of solace may be gathered.

MEDICAL PREPAREDNESS

The Individual Physician's Responsibility

Late in July every physician in Iowa received, or should have received, from the American Medical Association a questionnaire regarding his age, training, military experience and willingness or inability to serve the United States in case of a national emergency. A total of 3,059 questionnaires were mailed to Iowa physicians, and to date 1,682 have been returned, or 55 per cent.

On July 29 every member of the Iowa State Medical Society was sent a letter by the State Chairman on Medical Preparedness in Iowa, Dr. Thomas F. Suchomel of Cedar Rapids, urging that the questionnaire be filled in and returned at once and requesting that a card be sent him stating that the questionnaire had or had not been returned. Dr. Suchomel also offered to send a duplicate questionnaire to any physician who had misplaced the first one.

It is imperative that every physician return this questionnaire to the American Medical Association with the information requested. There seems to be a feeling on the part of some physicians that because they have retired, or are disabled physically, they need not send in this information. This is erroneous; it is as essential for the American Medical Association to know that a man cannot serve as that he can. The purpose of the questionnaire is to provide a true and accurate picture of the availability or unavailability of physicians. It is not to serve as a call to conscription, but is to be a method of appraising the situation.

Dr. Suchomel has been given the task of obtaining complete returns; he needs the cooperation of every physician. The JOURNAL hopes that each member of the Iowa State Medical Society will do his part by filling in the questionnaire, mailing it to the American Medical Association, and reporting that fact to Dr. Suchomel.

The County Society's Responsibility

The county medical society can play an important part in medical preparedness work. Its first concern should be with the return of all questionnaires. The state chairman on medical preparedness plans to submit to all county societies a list of its members who have not sent in the information requested. It is his hope that the officers of the society, or a committee appointed for that purpose, will talk to such physicians and obtain from them the data needed. His recommendation is that each county medical society appoint a Committee on Medical Preparedness because this will be a long range program, the responsibility for which should fall upon many shoulders.

Another recommendation is that each county medical society devote one meeting a year to a discussion of the part the medical profession will play in national defense. Such a program should be helpful in clarifying the haze now surrounding the matter in the minds of some physicians, and should stimulate all physicians to work out a plan for medical care of their community in case of a national emergency.

THE TUBERCULIN TEST

A survey of tuberculosis in Tennessee and Alabama by Lumsden, Dearing and Brown* of the United States Public Health Service, resulted in some extremely disconcerting data which question the value of the tuberculin test as an epidemiologic index of tuberculous infection.

The survey was conducted in Giles county, Tennessee, where the annual death rate from tuberculosis per 100,000 population was 116 among whites and 210 among negroes. At the same time a survey of Coffee county, Alabama, was conducted where the mortality rate was 12.5 among the white population and 59.4 among the negroes. Testing some 3,900 school children with one-tenth the second strength of purified protein derivative (0.0005 of a milligram), it was found that in spite of the marked difference in the tuberculous mortality rates in the two counties, the reactions of the Mantoux tests were almost the same in the two counties. In Giles county, Tennessee, 13.8 per cent of the white children and 22.4 per cent of the colored children reacted, and in Coffee county, Alabama, 14.9 per cent of the white children and 19.5 per cent of the colored children

reacted. It had been anticipated that from 40 to 60 per cent of the children in Giles county, Tennessee, would prove to be positive reactors. In view of the low percentage of reactors it was suspected that there was something wrong with the supply of purified protein derivative.

To check the efficacy of the preparation of purified protein derivative, the following tests were made: first, with the full second strength dose of purified protein derivative; and second, with lot 511 of old tuberculin, with lot 771 of old tuberculin, with a lot of old tuberculin from the Michigan State Department of Health, and with a purified protein derivative preparation from another pharmaceutical company. Strikingly variable results were obtained. A total of 701 children in several schools who were negative to one-tenth the second dose of purified protein derivative were retested. Of 333 retested with full second strength of purified protein derivative, 11.7 per cent were positive; of 164 retested with lot 511 of old tuberculin, 31.1 per cent were positive; and of 204 retested with lot 771 of old tuberculin, 80.9 per cent were positive. Duplicate tests on opposite forearms were done on 450 children, with one-tenth the second strength dose of purified protein derivative used on one arm, and a similar dose of another preparation used on the other arm. The results were: 11.8 per cent reacted to purified protein derivative, 52.6 per cent to lot 511 of old tuberculin, 78.6 per cent to lot 771 of old tuberculin, 19.4 per cent to old tuberculin from the Michigan State Department of Health, and 31.4 per cent to a purified protein derivative of another pharmaceutical company.

The obvious discrepancies in the results of this carefully conducted survey indicate clearly that the potency and specificity of the different tuberculin preparations employed by health agencies vary greatly. Such a divergent "yardstick" cannot be used in making satisfactory epidemiologic measurements.

In this survey, all children were x-rayed whether they reacted or not to the tuberculin test. In Giles county, Tennessee, 43 per cent of the white children, and 25 per cent of the colored children showed definite evidence of calcified primary lesions of tuberculosis; and in Coffee county, Alabama, only 0.6 per cent of the white children and 1.1 per cent of the colored children showed such lesions. In Giles county, x-ray evidence of calcified pulmonary lesions was almost as frequent among those negative as among those positive to routine testing with one-tenth the second strength dose of purified protein derivative. Of the white children 46.5 per cent of the purified protein de-

*Lumsden, L. L., Dearing, W. P., and Brown, R. A.: Questionable value of skin testing as a measure of establishing an epidemiological index of tuberculous infection. *Am. Jour. Pub. Health*, xxix:25 (January) 1939.

rivative negative group, 42.7 per cent showed calcification. Of the colored children 33.3 per cent of the purified protein derivative positive group and 23.6 per cent of the purified protein derivative negative group showed calcified lesions.

It may be concluded from this study that skin testing with available tuberculin preparations, as a sole measure of determining the incidence of tuberculous infection, is of questionable value. Further work must be done to establish reliable standards of potency, specificity, uniformity and stability of tuberculin preparations.

POSTGRADUATE COURSE IN OBSTETRICS AND GYNECOLOGY

During the five months period from January 28 to June 29, 1940, the University of Iowa offered to the physicians of the state a short, informal course in obstetrics and gynecology at the University Hospitals. This program was under the auspices of the State Department of Health and was included under the Division of Maternal and Infant Welfare.

This period was necessarily experimental because it was essential to ascertain the varied needs and demands of the general practitioners over the state. During the coming year the program will be continued under a more formal set-up and will be stabilized to include some didactic teaching on selected subjects. The six day course will be offered to three practitioners every other week as outlined in the following schedule.

1940

September 23 to 28
October 7 to 12
October 21 to 26
November 4 to 9
November 18 to 23
December 2 to 7
December 16 to 21

1941

January 6 to 11
January 20 to 25
February 3 to 8
February 17 to 22
March 3 to 8
March 17 to 22
March 31 to April 5
April 14 to 19
April 28 to May 3
May 12 to 17
May 26 to 31
June 9 to 14
June 23 to 28

The three physicians who sign up for each week will be asked to appear at 8:00 a.m. on Monday

and remain until noon on Saturday of the specified week. There will be no charge for the instruction, but the visiting doctors will be required to maintain themselves. Room and board are available at reasonable rates.

The participating physicians will spend most of their time in the department. Each day there will be different obstetric and gynecologic procedures performed, together with ward walks on both the gynecologic and obstetric services. Didactic teaching will be available each afternoon and will include particularly endocrinology, chemotherapy, toxemia of pregnancy, pelvic measurements, care of the newborn, causes and treatment of bleeding both in pregnancy and in the non-pregnant state, and vaginal discharges, their cause and treatment. We shall also try to demonstrate the various nursing procedures. During the school year there will be individual clinics by the different departments, clinical pathologic conferences, and other events of general interest.

AMERICAN RED CROSS TO SUPPLY BLOOD PLASMA

According to a recent announcement by Chairman Norman H. Davis, the American Red Cross has under consideration a plan to furnish blood plasma to the United States Army Medical Corps in the event of emergency. Such a program would become part of the national defense program when and if needed. Also being considered is a parallel project to furnish voluntary plasma to the British Red Cross for the treatment of war victims.

The proposed plan is of especial interest to Iowans because of the fact that Dr. Everett D. Plass, of the State University of Iowa, College of Medicine, has been appointed to the committee to conduct a preliminary survey. Dr. Plass' interest in the blood bank project is well known.

The plan envisages the recruiting of donors in collecting centers in various cities throughout the country. Blood plasma will be used instead of whole blood because of its superior keeping qualities, because typing is unnecessary, and because it can be moved about freely without damage to it. Furthermore, blood plasma is as effective in the treatment of hemorrhage and shock as is whole blood. It is to be pooled and stored in large containers ready for shipment to any point desired.

The proposal by the American Red Cross impresses us as being of the utmost importance. It is a type of medical preparedness which will be approved by all physicians. Coming under consideration now, ample time should be available for working out details, a task which we surmise will be of no small magnitude.

SPEAKERS BUREAU ACTIVITIES

POSTGRADUATE COURSES

Throughout the summer months the Speakers Bureau has been busily engaged arranging postgraduate medical education courses for seven centers in the state this fall. In addition to these programs, three county medical societies, whose courses began early last spring, will resume their monthly meetings in September and October, making a total of ten series of lectures which will be in progress during the remainder of the year.

The complete outline of the courses is given below. Especial attention should be given to the details of the meetings and the dates; in some instances, the county society itself is sponsoring the programs and no individual fee will be charged. All courses will run at weekly, bi-monthly or monthly intervals and registrations should be made with the local chairman indicated.

Humboldt County Postgraduate Course Coca-Cola Plant, Humboldt, Iowa

Thursdays at 7:30 p. m.

Fee: \$8.00

Ivan T. Schultz, M.D., Humboldt, Local Chairman

- Sept. 19 Diseases of the Blood
W. M. Fowler, M.D., Associate Professor of Internal Medicine, University of Iowa, College of Medicine, Iowa City, Iowa.
- Sept. 26 Edema
Wm. A. Thomas, M.D., Assistant Professor of Clinical Medicine, Rush Medical College, Chicago, Illinois.
- Oct. 3 Endocrinology
E. H. Ryncarson, M.D., Assistant Professor of Medicine, Mayo Clinic, Rochester, Minnesota.
- Oct. 10 Heart
H. M. Korn, M.D., Professor of Internal Medicine, University of Iowa, College of Medicine, Iowa City, Iowa.
- Oct. 17 Gynecology in Office Practice
Irving F. Stein, M.D., Associate Professor of Obstetrics and Gynecology, Northwestern University School of Medicine, Chicago, Illinois.
- Oct. 24 Urology in General Practice
C. D. Creevy, M.D., Assistant Dean and Associate Professor of Surgery and Urology, University of Minnesota Medical School, Minneapolis, Minnesota.
- Oct. 31 Round Table Discussion on Prematurity
Addison W. Brown, M.D., Des Moines.
Arnold M. Smythe, M.D., Des Moines.
- Nov. 7 Treatment of Fractures
Lewis M. Overton, M.D., Des Moines.

Nov. 14 The Acute Abdomen

Frederick C. Hill, M.D., Assistant Professor of Surgery, Creighton University School of Medicine, Omaha, Nebraska.

Dallas-Guthrie Society Postgraduate Course Presbyterian Church Hall, Panora, Iowa

Tuesdays at 7:30 p. m.

Fee: \$5.00

S. J. Brown, M.D., Panora, Local Chairman

- Sept. 24 Diseases of the Heart
Daniel J. Glomset, M.D., Des Moines.
- Oct. 1 The Eye in General Practice
John M. Matheson, M.D., Des Moines.
- Oct. 8 Physical Diagnosis
Maurice G. Howard, M.D., Associate Professor of Medicine, Creighton University School of Medicine, Omaha, Nebraska.
- Oct. 15 Fractures of the Wrist and Elbow
Lewis M. Overton, M.D., Des Moines.
- Oct. 22 Diseases of the Gallbladder
R. Russell Best, M.D., Assistant Professor of Anatomy and Surgery, University of Nebraska, College of Medicine, Omaha, Nebraska.
- Oct. 29 Common Diseases of Children
Jack V. Treynor, M.D., Council Bluffs.
- Nov. 5 Common Skin Diseases
Ruben Nomland, M.D., Professor of Dermatology and Syphilis, University of Iowa, College of Medicine, Iowa City, Iowa.
- Nov. 12 Urology in General Practice
L. E. Pierson, M.D., Sioux City.

Poweshiek County Postgraduate Course Hotel Monroe, Grinnell, Iowa

Tuesdays

Dinner: 6:30 p. m.

Lecture: 7:30 p. m.

*Fee: \$5.00

C. E. Harris, M.D., Grinnell, Local Chairman

- Oct. 8 Physical Diagnosis of the Heart
Daniel J. Glomset, M.D., Des Moines.

*The fee of \$5.00 will be charged physicians outside of Poweshiek County. This amount will also cover dinner charges. Individual lectures will cost \$1.50, but this will not cover dinners.

Oct. 15 Physical Diagnosis of the Chest
Fred M. Smith, M.D., Head of Department of Internal Medicine, University of Iowa, College of Medicine, Iowa City, Iowa.

Oct. 22 Physical Diagnosis of the Abdomen
Frank R. Peterson, M.D., Head of Department of Surgery, University of Iowa, College of Medicine, Iowa City, Iowa.

Oct. 29 Physical Diagnosis of the Nervous System
Frank A. Ely, M.D., Des Moines.

Wapello County Postgraduate Course
Hotel Ottumwa, Ottumwa, Iowa

***Every Other Tuesday**

Dinner: 6:30 p. m.

Lecture: 7:30 p. m.

No charge with exception of dinner

Gilbert C. Struble, M.D., Ottumwa, Local Chairman

Sept. 17 Endocrinology

Llewelyn P. Howell, M.D., Department of Internal Medicine, Mayo Clinic, Rochester, Minnesota.

Oct. 1 Hand Infections

Michael L. Mason, M.D., Associate Professor of Surgery, Northwestern University School of Medicine, Chicago, Illinois.

Oct. 15 Possibilities in Reconstructive Surgery

James Barrett Brown, M.D., Associate Professor of Clinical Surgery, Washington University, School of Medicine, St. Louis, Missouri.

Oct. 29 Diagnosis and Treatment of Common Skin Diseases

Clinton W. Lane, M.D., Washington University, School of Medicine, St. Louis, Missouri.

Nov. 5 Diseases of the Heart

Elmer E. Kottke, M.D., Des Moines.

Nov. 19 Occiput Posterior—Manikin Demonstration

John H. Randall, M.D., Associate Professor of Obstetrics and Gynecology, University of Iowa, College of Medicine, Iowa City, Iowa.

Dec. 3 Common Diseases of the Chest

Daniel W. Myers, M.D., Department of Internal Medicine, Washington University, School of Medicine, St. Louis, Missouri.

Dec. 17 Office Gynecology

Joseph L. Baer, M.D., Clinical Professor of Obstetrics and Gynecology, Rush Medical College, Chicago, Illinois.

*There will be a lapse of only one week after the October 29 meeting. Lectures will be resumed on a bi-monthly basis November 5 for the remainder of the course. This plan was adopted in order to prevent any conflict with holidays in November and December.

O'Brien County Postgraduate Course
Arlington Hotel, Sheldon, Iowa

***Thursdays**

Dinner: 6:30 p. m.

Lecture: 7:30 p. m.

Fee: \$5.00

W. R. Brock, M.D., Sheldon, Local Chairman

Oct. 3 Common Obstetrical Abnormalities

Leon S. McGoogan, M.D., Assistant Professor of Obstetrics and Gynecology, University of Nebraska, College of Medicine, Omaha, Nebraska.

Oct. 10 Allergy in General Practice

Charles K. Maytum, M.D., Mayo Clinic, Rochester, Minnesota.

Oct. 17 The Effects of Arterial Disease on the Myocardium

S. Marx White, M.D., Professor of Medicine, University of Minnesota, Medical School, Minneapolis, Minnesota.

Oct. 24 Physical Diagnosis

William D. Paul, M.D., Associate Professor of Internal Medicine, University of Iowa, College of Medicine, Iowa City, Iowa.

Oct. 31 Diseases of the Eye in General Practice

John M. Matheson, M.D., Des Moines.

Nov. 7 Reasons for Bad Results in the Treatment of Fractures

James K. Stack, M.D., Department of Orthopedics, Northwestern University School of Medicine, Chicago, Illinois.

Nov. 14 Common Diseases of Children

George E. Robertson, M.D., Omaha, Nebraska.

Nov. 20 The Diagnosis and Treatment of Convulsions

Paul C. Bucy, M.D., Assistant Professor of Surgery, University of Chicago Medical School, Chicago, Illinois.

Lucas, Wayne, Marion, Monroe Counties
Postgraduate Course

Chariton, Knoxville, Corydon and Albia, Iowa

Every Other Tuesday

Fee: \$5.00

Sept. 10 Chariton Hotel, Chariton—

Dinner, 6:00 p. m.

Public Library, Chariton—

Lecture: 7:30 p. m.

R. C. Gutch, M.D., Chariton, Local Chairman.

Demonstration of Laboratory Procedure for General Practitioner

Victor B. Buhler, M.D., Kansas City General Hospital, Kansas City, Missouri.

*Dr. Paul C. Bucy's lecture will be given on Wednesday, November 20 in order to avoid any possible conflict with Thanksgiving Day.

Sept. 24 Boylan's Cafe, Knoxville—

Dinner: 6:30 p. m.

Women's Club, Knoxville—

Lecture: 7:30 p. m.

J. R. Wright, M.D., Knoxville, Local Chairman.

Round Table Discussion on Prematurity

Addison W. Brown, M.D., Des Moines.

Arnold M. Smythe, M.D., Des Moines

Oct. 8 Elnor Tea Room, Corydon—

Dinner: 6:30 p. m.

Lecture: 7:30 p. m.

D. R. Ingraham, M.D., Sewal, Local Chairman.

Diseases of the Blood

Willis M. Fowler, M.D., Associate

Professor of Internal Medicine, Uni-

versity of Iowa, College of Medicine,

Iowa City, Iowa.

Oct. 22 Commercial Club Rooms, Albia—

Lecture: 7:30 p. m.

J. F. Stafford, M.D., Lovilia, Local Chairman.

Infant Feeding

Fred Moore, M.D., Des Moines.

Nov. 5 Boylan's Cafe, Knoxville—

Dinner: 6:30 p. m.

Women's Club, Knoxville—

Lecture: 7:30 p. m.

J. R. Wright, M.D., Knoxville, Local Chairman.

Heart Disease

Daniel J. Glomset, M.D., Des Moines.

Nov. 19 Chariton Hotel, Chariton—

Dinner: 6:00 p. m.

Public Library, Chariton—

Lecture: 7:30 p. m.

R. C. Gutch, M.D., Chariton, Local Chairman.

The Treatment of Staphylococcus

Septicemias

Physical Diagnosis of the Goiter

Paul F. Stookey, M.D., Assistant Pro-

fessor of Medicine, University of

Kansas School of Medicine, Kansas

City, Missouri.

Des Moines Academy of Medicine and Polk County
Medical Society Postgraduate Program

Third Wednesday in each month

No charge

Daniel J. Glomset, M.D., Des Moines, Local Chairman

September 18—Younkers Tea Room

6:00 p. m. The Acute Abdomen

James T. Priestley, M.D., Rochester.

7:00 p. m. Dinner

8:00 p. m. Food in the Practice of Medicine

Clifford J. Barboraka, M.D., Chicago.

October 16—Broadlawns Tuberculosis Hospital

6:30 p. m. Dinner

7:30 p. m. Dry Clinic in Out-patient Therapy

Carcinoma of the Cervix

Addison W. Brown, M.D., Des Moines.

The Drip Method in Treatment of

Syphilis

Lindsay J. Ervin, M.D., Des Moines.

November 20—Younkers Tea Room

6:00 p. m. Traumatic Surgery

James Barrett Brown, M.D., St. Louis.

7:00 p. m. Dinner

8:00 p. m. The Relation of Physiology to

Modern Medicine

Andrew C. Ivy, M.D., Chicago.

December 18—Iowa Lutheran Hospital

6:30 p. m. Dinner

7:30 p. m. A Short Pathologic Conference

Julius S. Weingart, M.D., Des Moines.

February 19—Mercy Hospital

6:30 p. m. Dinner

7:30 p. m. Avoidable Errors in Technic in Surgery

of the Female Pelvis

Howard D. Gray, M.D., Des Moines.

Some Practical Points of Urology for

the General Practitioner

Clifford W. Losh, M.D., Des Moines.

The Surgical Treatment of Intractable

Pain

Walter D. Abbott, M.D., Des Moines.

Treatment of Tendon Injuries

Dwight C. Wirtz, M.D., Des Moines.

March 19—Younkers Tea Room

6:00 p. m. The Making of a Diagnosis

David P. Barr, M.D., St. Louis.

7:00 p. m. Dinner

8:00 p. m. Head Infections in Relation to

General Practice

George E. Shambaugh, Jr., M.D.,

Chicago.

April 16—Iowa Methodist Hospital

6:30 p. m. Dinner

7:30 p. m. Symposium on the Thyroid:

Physiology and Pathology

Richard F. Birge, M.D., Des Moines.

Treatment

Frank E. Walton, M.D., St. Louis.

May 21—Younkers Tea Room

6:00 p. m. Endocrinology in General Practice

Elmer L. Sevringhaus, M.D., Madison.

7:00 p. m. Dinner

8:00 p. m. New Drugs

Eugene M. K. Geiling, M.D., Chicago.

The fall schedules of postgraduate course lectures for the Calhoun, Marshall and Boone-Story County Medical Societies, which began last spring, are as follows:

Rockwell City

High School, Rockwell City, Iowa

Tuesdays at 6:30 p m.

P. W. Van Metre, M.D., Rockwell City,
Local Chairman

Sept. 17 Injection Clinic:

Varicose veins; hernia; hemorrhoids

Julian M. Bruner, M.D., Des Moines.

Oct. 15 Orthopedics:

Fractures; dislocations; sprains, bunions; ingrown toenails; plantar warts; bursitis; use of plaster of paris; backache

Fred L. Knowles, M.D., Fort Dodge.

Nov. 19 Bête Noire of Medical Practice:

Sinus disease; asthma; asthenic and neurotic states; constipation; furunculosis; obesity; hypertensive states

John I. Marker, M.D., Davenport.

Marshalltown

Hotel Tallcorn

Tuesdays at 6:00 p. m.

G. W. Harris, M.D., Marshalltown, Local Chairman

Oct. 8 Diseases of the Heart—Diagnosis and Treatment

Hugh McCulloch, M.D., Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis, Missouri.

Nov. 5 Arthritis and Its Treatment

Morris J. Shapiro, M.D., Assistant Professor of Medicine, University of Minnesota, Minneapolis, Minnesota.

Dec. 3 Vitamin Deficiency—Symptoms and Treatment

Clifford J. Barborka, M.D., Chicago, Illinois.

Boone-Ames

Boone: Hotel Holst, 6:30 p. m.

Ames: Sheldon-Munn Hotel, 6:30 p.m.

B. T. Whitaker, M.D., Boone, Local Chairman

Sept. 26 The Acute Abdomen

Arnold S. Jackson, M.D., Jackson Clinic, Madison, Wisconsin.

Oct. 23 Differential Diagnosis and Treatment of Cataract and Glaucoma

C. S. O'Brien, M.D., Professor of Ophthalmology, College of Medicine, State University of Iowa, Iowa City, Iowa.

Nov. 6 Arthritis and Its Treatment

Morris J. Shapiro, M.D., Assistant Professor of Medicine, University of Minnesota, Minneapolis, Minnesota.

Dec. 4 Diagnosis and Treatment of Some Diseases of the Blood and Blood Forming Organs
Raphael Isaacs, M.D., Associate Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Michigan.

The postgraduate courses are open to all physicians, nurses and assistants in the respective vicinities. In view of the fact that the numerous centers of instruction are widely scattered throughout the state, more physicians than ever before may take advantage of the education offered. The Speakers Bureau is confident that a review of the schedules will insure excellent enrollments. In many instances, nationally prominent men have been procured to appear, and they deserve the audience of every member within that area.

Letters announcing the schedules, hours, meeting places and fees for the courses will be sent out by the Speakers Bureau in the near future, and any further information may be obtained by writing this office.

We feel the physicians of Iowa are being presented with an outstanding program of postgraduate medical education this fall, and certainly the time and effort which has been expended in making this possible will be considered worthwhile if the state society members will reciprocate by attending the courses.

ANNOUNCEMENT

For some time the Speakers Bureau has felt that a method of instruction should be devised whereby scientific programs could be provided for small county medical societies. These groups are afforded few such programs since it is difficult to procure speakers who will address small audiences. With this objective, the Speakers Bureau plans to supplement its present service to these groups by making available transcribed lectures which have been recorded by nationally known men. These records and suitable reproducing equipment will be furnished by this office upon the request of any county society or other medical group. We expect to have our first recordings ready for use early in October and further announcement of this new method of medical education will appear in a subsequent issue of the JOURNAL.

RADIO SCHEDULE

WSUI—Tuesdays at 8:00 p. m.

WOI—Wednesdays at 2:15 p. m.

Sept. 3-4 Syphilis As It Affects You

Regnar M. Sorensen, M.D.

Sept. 10-11 Physiology of the Eye

John M. Matheson, M.D.

Sept. 17-18 Smallpox

Harry E. Ransom, M.D.

Sept. 24-25 Abdominal Pain In Children

Clark N. Cooper, M.D.

WOMAN'S AUXILIARY NEWS

MRS. H. I. MCPHERRIN, *Chairman of Press and Publicity Committee*
5822 North Waterbury Road, Des Moines

President—MRS. ELBERT T. WARREN, Stuart

President Elect—MRS. W. R. HORNADAY, Des Moines

Secretary—MRS. FRED MOORE, Des Moines

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

REPORT OF PROGRAM COMMITTEE

Dear Auxiliary Members:

Very soon the County Auxiliaries will meet again. With this in mind the Program Committee met Thursday, August 8, to decide on the subject matter for the year. With us were several past presidents, committee chairmen and our president, Mrs. E. T. Warren. Because answers to the question, "How can we make our program more interesting?" were an inspiration to me I assume that they will be to you. Some replies were: "We must offer to auxiliary members something in a program that is personal and something that they cannot get elsewhere," and "We must offer something tempting enough to bring counties back into the fold, and where there is no organization, to help doctors' wives to want to become members at large."

Bearing these statements in mind the Committee decided on the topic "Modern Trends in Medicine," with the hope that it might be the means of fulfilling in some measure the above aims. It is the desire of the Committee that this subject may be broad enough and that the outline, which will be published next month, may be flexible enough to appeal to any auxiliary. The program will be built around each month as a unit. To be specific, in the month of October the immunization program of the State Department of Health will be emphasized with a study of smallpox and diphtheria and the lives of noted pathologists, such as Edward Jenner.

Let us consider that we have a two-fold objective for this study: first, self education; and second, lay education. Directly we must inform ourselves so that we may cooperate intelligently with our State Medical Society. As a result we may guide indirectly the laity to an understanding of medical and health programs. In addition to the study course two innovations have been planned. There will appear each month a "Do You Know" column and a book brief which will be prepared by Mrs. Keith Chapler of Dexter. I hope that every doctor's wife may become a reader of the Woman's Auxiliary News.

We all know that in unity there is strength. Surely it will give us courage and ability to push forward if we are assured that all the auxiliaries are reading and thinking along the same lines throughout the year. May I suggest that each meeting in-

clude medical current events and a planned program. Of course the form of the program may be as varied as our interests—essays, playlets, book reviews, etc.

In this time of unrest and uncertainty may we be alive to medical trends and the problems confronting our husbands, and let it not be said of us, "No interest, already dead, no response, already dead." Rather may it be said, "Let us then be up and doing; still achieving, still pursuing."

We trust that the suggested program may meet with the approval of the auxiliaries and that we may be good students this year.

Mrs. A. G. Felter, *Chairman Program Committee*

The following letter may be of interest to auxiliary members, showing as it does, the excellent way in which a lay group used suggestions from last year's program committee on the topic, "Mental Hygiene."

Dear Anne:

When you asked me what our book club had used for a theme this year you gave me an opportunity I was hoping to have. I first heard about the Mental Hygiene Program through a committee meeting, and I immediately realized its possibilities of development in a lay group.

Our Book Club members represent all the family units of this program which was outlined in the "Woman's Auxiliary News" of the JOURNAL OF THE IOWA STATE MEDICAL SOCIETY. Each club member who chose a topic of this outline to present did so because of personal problems within her own family group.

In order that we all might have an equal understanding of the subject the first discussion consisted of the history of mental hygiene, which included definition, origin and development. This was followed by a comprehensive study of childhood from the prenatal period through adolescence.

We little realized the importance of security and contentment to both the mother and the child in the mental development of the child during the prenatal and infancy stages. Through our discussion of the school-age child we learned the social significance to the community of the Child Guidance Clinics. Health habits and physical changes were of primary interest in studying the adolescent.

At this point one of the outstanding books of the year, "You and Heredity," by A. Schienfeld, was reviewed. One program was devoted to personality and personality adjustments, and of special interest was the coloring of a child's personality through outside contacts.

New developments in the care and treatment of patients in our mental institutions highlighted the discussion of mental hygiene of the adult. At this time "Rules for Mental Health of the Adult" by John I. Marker, M.D., were studied. As a final correlation of these discussions a review of Folsom's book, "The Family," was made.

We were encouraged by the cooperation of the Iowa State Medical Library, which not only gave us material to use, but also made many helpful suggestions. We received valuable material from our city library and State Health Department. The same information is available to you through your circulating library.

Of course the field of mental hygiene is so extensive that we could not hope to cover it in a year's time, but we did achieve a new understanding which will enable us all to follow the developments and inclinations of our personal interests. I am sure your group would gain as much in this new adventure in study as we have.

Many times during our discussions I had you in mind knowing of your interest in the subject. It makes me very happy to know that you will have an opportunity to study it, and I shall be glad to help in any way possible.

As ever, Ruth

REPORT OF THE PUBLIC RELATIONS COMMITTEE OF THE AMERICAN MEDICAL ASSOCIATION

"The term 'public relations' was invented some twenty-five years ago to describe a type of service developed by large business concerns for the purpose of studying and dealing with so-called mass mind reactions which had grown increasingly hostile toward various methods of business management. During the last decade many companies, professional groups and so-called lay organizations have adopted this type of specialized service. As used by these groups, the term 'public relations' is descriptive of a new type of social engineering. It endeavors to apply to human relationships of an organization something that 'approximates the engineer's knowledge of stresses and strains, something of his ability not only to calculate and balance known factors but to anticipate unforeseen contingencies.'

"A program of public relations should be so designed as to create good will for an organization. It should build a public opinion toward the organization which is correctly informed as to its aims. Furthermore, it should produce confidence in the integrity and ability of the organization to fulfill its obligations to the community in which it functions.

"As an auxiliary organization to the American Medical Association, the Woman's Auxiliary should promote rather than originate policies which have to do with the performance of such service as public relations. Hence, the objectives offered by the national committee were as follows: first, to acquaint the public with the means of acquiring authentic information on health; and second, to present the attitudes and aims of the American Medical Association on the national health issues.

"Thirty-two states held special public relations meetings during the year to which official representatives of lay women's organizations were invited. A number of auxiliaries reported that sample copies of *Hygeia* were presented to the guests. Twenty-three states conducted health essay contests. Thirty-two states promoted interest in local and national radio programs. Twenty-six states assisted in library advisory work. Thirty-two states promoted interest in the medical speaker's bureau. Twenty-three states cooperated in summer round-up examinations. Twenty-two states actively cooperated with lay organizations in the interest of health.

"The theme for the year is 'If we are to inform others, we must first inform ourselves.'

"Our concern should be the interpretation of the aims and attitudes of the American Medical Association with regard to all questions relating to the public. This is the function of the department of public relations."

Mrs. W. A. Seidler, Chairman
Public Relations Committee

Dallas-Guthrie Auxiliary

The Woman's Auxiliary to the Dallas-Guthrie Medical Society met in regular session Thursday, July 18, at Woodward in the Methodist Church. Following the luncheon Mrs. Marion H. Brinker of Yale, president, conducted a short business meeting. Mrs. Warren commented on the national meeting after which a general discussion was entered into by those present. The group visited some of the wards at the state epileptic institution after the business meeting. It was decided to hold the September party in Guthrie Center.

Mrs. K. M. Chapler, Secretary

New Auxiliary Organized

The Organization Committee, under the leadership of Mrs. W. R. Hornaday of Des Moines, is happy to announce the affiliation of a new auxiliary to the national and state groups. The Woman's Auxiliary to the Upper Des Moines Medical Society will function with the following officers: Mrs. Frank D. Edington of Spencer, president; Mrs. Donald F. Rodawig of Spirit Lake, vice president; and Mrs. Oscar H. Miller of Estherville, secretary and treasurer. This group includes wives of physicians practicing in Clay, Dickinson, Emmet and Palo Alto counties.

SOCIETY PROCEEDINGS

Boone-Story Society

More than seventy members and guests of the Boone and Story County Medical Societies assembled at the Ames Golf and Country Club, Friday, July 19. The scientific program consisted of a paper on Peripheral Vascular Disease, presented by Geza de Takats, M.D., associate professor of surgery, University of Illinois, College of Medicine, Chicago. A feature of the evening was the presentation by Dr. Bush Houston of Nevada of a gift to Dr. Earl B. Bush of Ames, president elect of the Iowa State Medical Society, as a token of friendship on the part of professional colleagues in the two county societies.

B. T. Whitaker, M.D., Secretary
Boone County Medical Society

Greene County

A basket picnic for doctors and their families was held by the Greene County Medical Society, at the Jefferson Country Club, Thursday, August 15. Miss Pearl Britt spoke on her recent trip to the Orient.

J. R. Black, M.D., Secretary

Hardin County

The regular monthly meeting of the Hardin County Medical Society was held at the Winchester Hotel in Eldora, Thursday, July 25. After the six-thirty dinner, Conan J. Peisen, M.D., of Des Moines, spoke on The Value and Use of the Gastroscope.

W. E. Marsh, M.D., Secretary

Sac County

Twenty-five doctors from Sac and adjoining counties attended the regular monthly meeting of the Sac County Medical Society, at the Park Hotel in Sac City, Thursday, July 25. After the six-thirty dinner, a short business meeting was held, at which Drs. William A. Johnson of Auburn and John W. Gauger of Early were formally accepted as new members. Robert R. Kierland, M.D., of the Mayo Clinic, department of dermatology, Rochester, presented an illustrated lecture on Common Skin Diseases and Their Management. His talk was well received and provoked much comment.

H. N. Neu, M.D., Secretary

Iowa and Illinois Central District Medical Association

The fall meeting of the Iowa and Illinois Central District Medical Association will be held Wednesday evening, September 18, at the Le Claire Hotel in Moline, Illinois. Preceding the scientific meeting a

motion picture in color, of the picnic which was held June 5, will be shown. The program will begin at eight o'clock with a ten minute paper by Earl B. Ritchie, M.D., of Davenport, entitled A Short Resumé on Industrial Dermatoses. The guest speaker of the evening will be Percy S. Pelouze, M.D., assistant professor of urology, University of Pennsylvania, School of Medicine, Philadelphia, who will address the group on Gonococcal Infections and the Sulfonamide Compounds.

James Dunn, M.D., Secretary

PERSONAL MENTION

Dr. William I. Evans, who was graduated in 1935 from the State University of Iowa, College of Medicine, Iowa City, has left Odebolt after a year's practice, and located in Sac City.

Dr. Harry W. Vinson of Ottumwa, presented an illustrated lecture to members of the Ottumwa Rotary Club, Monday evening, July 22, at a meeting held at Sunnyslope Sanatorium. Dr. Vinson's subject was "Treatment of Tuberculosis."

Dr. William E. Hay, after practicing nine years in Avoca, has accepted an appointment for postgraduate study at Harvard Medical School in Boston. He has disposed of his practice to Dr. Rudolph J. Wieseler who has been associated with the state institution at Glenwood for the past year. Dr. Wieseler was graduated in 1938 from Creighton University School of Medicine, Omaha.

Dr. Ewen M. MacEwen, dean of the State University of Iowa, College of Medicine, Iowa City, was guest speaker for the Cedar Rapids Rotary Club, Monday, August 12, at a meeting held at the Roosevelt Hotel. His subject was "Problems in Medical Education."

Dr. Willard W. Hayne, formerly medical supervisor of intercollegiate athletics at the State University of Iowa, has left Iowa City, and located in Holstein, where he will enter the private practice of medicine.

Dr. Ingram C. Taylor has left Fairfield and moved to Minneapolis, Minnesota, where he will be connected with the United States Veterans Hospital.

Dr. Thomas L. Vineyard, after seven years' practice in Dow City, has located in Ottumwa, where he will limit his practice to proctology.

Dr. Leland F. Studebaker, for five years associated with his father, Dr. John F. Studebaker, in Fort Dodge, has announced his removal from that city, and his entrance into practice in Fresno, California.

Dr. Marshall D. Huston, formerly associated with Dr. F. E. Carpenter of Newton, has located in Centerville, where he will be associated with Drs. F. B. Leffert, C. F. Brummitt and R. R. Edwards.

Dr. John C. Herman, after practicing for five years in Traer, has left that locality and moved to Boone, where he will be associated with Drs. E. M. Myers, N. M. Whitehill and B. T. Whitaker.

Dr. Guy R. McCutchan has returned to Council Bluffs after a year's absence, during which he was associated with the University of Oregon Medical School in Portland.

MARRIAGES

The marriage of Miss Elizabeth Shortridge of Sioux Falls, South Dakota, and Dr. John B. Larson of Laurens, took place Monday, July 15, in Remsen. Dr. Larson was graduated in 1938 from the State University of Iowa, College of Medicine, Iowa City. After the wedding trip the young couple will return to Laurens where Dr. Larson has been associated with Dr. J. H. Hovendon for the past year.

Miss Ruth Bowman of Guttenberg and Dr. A. Walter Ciani of Iowa City were married Saturday, August 24, in St. Mary's Church in Guttenberg. Dr. Ciani was graduated in 1931 from Harvard Medical School, Boston, and for the past three years has been connected with the orthopedic department of the State University of Iowa, College of Medicine, Iowa City. He is now engaged as first assistant to Dr. Arthur Steindler.

DEATH NOTICES

Casey, Joseph Montgomery, of Fort Madison, aged seventy-five, died July 30, after a short illness. He was graduated in 1881 from Rush Medical College, University of Chicago, and at the time of his death was a member of the Lee County Medical Society.

Clingan, Charles Edward, of Sioux City, aged eighty-nine, died August 8, at the home of his son near Sundance, Wyoming. He was graduated in 1877 from Rush Medical College, University of Chi-

cago, and at the time of his death was a life member of the Woodbury County and Iowa State Medical Societies.

Gardner, Charles Walice, of Mt. Pleasant, aged eighty-two, died July 26, in a Burlington hospital of a heart ailment. He was graduated in 1894 from the College of Physicians and Surgeons, Keokuk, and at the time of his death was a life member of the Henry County and Iowa State Medical Societies.

Swearingen, Guy Howard, of Sac City, aged fifty-nine, died August 8, following a stroke. He was graduated in 1911 from Drake University College of Medicine, Des Moines, and at the time of his death was a member of the Sac County Medical Society.

Tyler, Edward King, of Muscatine, aged eighty-one, died August 3, after an extended illness. He was graduated in 1882 from the State University of Iowa, College of Medicine, Iowa City, and at the time of his death was a life member of the Muscatine County and Iowa State Medical Societies.

NEW PUBLICATION ON STUDIES ON ALCOHOL

Attention of our readers is directed to a new publication, *Quarterly Journal of Studies on Alcohol*. Volume I, Number 1 of this periodical appeared during the latter part of June, 1940. With the discontinuance of the *British Journal of Inebriety*, this is now the only scientific publication in the English language devoted solely to problems of alcohol.

Alcoholism has become an increasingly important public health problem, and the purpose of this *Quarterly Journal* is to help solve this problem by collecting and presenting valid scientific facts concerning alcohol and alcoholism. The American Association for the Advancement of Science recently formed the Research Council on Problems of Alcohol, and the Council has chosen the *Quarterly Journal* as its official organ.

The first issue contains articles on the following subjects: The High Proof of Liquor as a Factor in the Production of Alcoholism, Personality Factors in Alcoholic Addiction, The Influence of Alcohol on the Digestive Tract, The Influence of Alcohol on the Adequacy of the B Vitamins in the American Diet, The Effects of Alcohol on the Normal and Pathologic Kidney, Cirrhosis of the Liver, and Effects of Alcohol on the Individual: Review of the Literature of 1939.

Under the able editorship of Howard W. Haggard, M.D., New Haven, Connecticut, we predict that this journal will fill a long felt need in the realm of scientific research. THE JOURNAL OF THE IOWA STATE MEDICAL SOCIETY takes pleasure in welcoming the *Quarterly Journal of Studies on Alcohol* to the ranks of medical publications.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- TRAPPING THE COMMON COLD**—By George S. Foster, M.D., Manchester, New Hampshire. Fleming H. Revell Company, 158 Fifth Avenue, New York, 1940. Price, \$1.25.
- THE NEWER NUTRITION IN PEDIATRIC PRACTICE**—By I. Newton Kugelmass, M.D., Broad Street Hospital, New York. Illustrated. J. B. Lippincott Company, Philadelphia, 1940. Price, \$10.00.
- PNEUMONIOSIS (SILICOSIS): THE STORY OF DUSTY LUNGS**—By Lewis Gregory Cole, M.D., Director of Silicotic Research, John B. Pierce Foundation, New York; and William Gregory Cole, M.D., New York. The John B. Pierce Foundation, 40 West 40th Street, New York, 1940. Price, \$1.00.
- ARTIFICIAL PNEUMOTHORAX**—Edited by Edward N. Packard, M.D., John N. Hayes, M.D., and Sidney F. Blanchet, M.D. Illustrated. Lea and Febiger, Philadelphia, 1940. Price, \$4.00.
- THE 1939 YEAR BOOK OF GENERAL THERAPEUTICS**—Edited by Bernard Fantus, M.D., professor of therapeutics, University of Illinois College of Medicine. The Year Book Publishers, Chicago, 1940. Price, \$2.50.
- SEX IN MARRIAGE**—By Ernest R. Groves and Gladys Hoagland Groves. New edition, revised. Emerson Books, Inc., New York, 1940. Price, \$2.00.
- DIABETES: PRACTICAL SUGGESTIONS FOR DOCTOR AND PATIENT**—By Edward L. Bortz, M.D., associate professor of medicine, Graduate School of Medicine, University of Pennsylvania. Second edition, revised and enlarged. The F. A. Davis Company, Philadelphia, 1940. Price, \$2.50.
- DISEASES OF THE GALLBLADDER AND BILE DUCTS**—By Waltman Walters, M.D., and Albert M. Snell, M.D., The Mayo Clinic, Rochester. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.
- CLINICAL ROENTGENOLOGY OF THE ALIMENTARY TRACT**—By Jacob Buckstein, M.D., visiting roentgenologist, Bellevue Hospital, New York. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.
- SYNOPSIS OF OBSTETRICS**—By Jennings C. Litzenberg, M.D., professor emeritus of obstetrics and gynecology, University of Minnesota Medical School. The C. V. Mosby Company, St. Louis, 1940. Price, \$4.50.
- SPECIALTIES IN MEDICAL PRACTICE**, Two Volumes—Edited by Edgar van Nuys Allen, M.D., associate professor of medicine, University of Minnesota, Mayo Foundation. Thomas Nelson and Sons, New York, 1940. Price, \$25.00 per set.
- ST. THOMAS'S HOSPITAL REPORTS**—Volume IV, Second Series. Published by St. Thomas Hospital, London, S.E.1, 1939. Price, 10s.
- OBESITY AND LEANNESS**—By Hugo R. Rony, M.D., formerly associate in medicine and chief of endocrine clinic, Northwestern University School of Medicine. Lea and Febiger, Philadelphia, 1940. Price, \$3.75.
- THE 1939 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY**—Edited by Joseph B. DeLee, M.D., professor of obstetrics, University of Chicago Medical School; and J. P. Greenhill, M.D., professor of obstetrics and gynecology, Loyola University Medical School. The Year Book Publishers, Chicago, 1940. Price, \$2.50.

BOOK REVIEWS

COMPENDIUM OF REGIONAL DIAGNOSIS IN LESIONS OF THE BRAIN AND SPINAL CORD

By Robert Bing, M.D., professor of neurology, University of Basel, Switzerland. Translated and edited by Webb Haymaker, M.D., assistant clinical professor of neurology, University of California. Eleventh edition. The C. V. Mosby Company, St. Louis, 1940. Price, \$5.00.

This eleventh edition of neurologic regional diagnosis is replete with lucid descriptions and diagrammatic explanations. The author details all the discernible neurologic manifestations which the practitioner will encounter in the pathology of the spinal cord and the brain.

The text is conveniently divided into two parts. Part I describes the localization of spinal cord lesions in the transverse and longitudinal planes, briefly commenting on the anatomy and physiology of the spinal cord. Diagrammatic clarification minimizes the complexity of these lesions. Part II deals with the localization of cerebral lesions. This section is divided into localizations involving the brain stem, the cerebellum, and lesions of the cerebrum, basal ganglia and hypophysis. The last chapter is devoted to a discussion of some of the more uncommon cerebral symptoms and their possible significances.

This is a concise classic of neurologic pathology and its topographic expression, which will continue authoritative in fact and simplicity.

J. W. C.

CIRCULATORY DISEASES OF THE EXTREMITIES

By John Homans, M.D., clinical professor of surgery, Harvard Medical School. The Macmillan Company, New York, 1939. Price, \$4.50.

This book covers the arterial and venous circulatory diseases of the extremities, both upper and lower. Subjects discussed include arteriosclerotic deficiency and thrombosis, thrombo-angiitis obliterans, spasm of the arteries and arterial embolism, varicose veins, thrombophlebitis and pulmonary embolism, arterial aneurysm and abnormal arterio-venous communications, lymphangioma elephantiasis lymphedema, and the interpretation of some simple observations upon the circulatory disorders of the limbs.

A very sensible analysis of the use of the newer mechanical devices for the restoration of circulation to gangrenous legs from diabetes or arteriosclerosis furnished an interesting portion. The oscillating bed, the suction and pressure boot, and intermittent venous occlusion, which have gained so much prominence at our recent medical conventions, are properly evaluated and shown to be very expensive and very little, if at all, more efficient than the vascular exercises first described by Buerger-Allen.

The subject of thrombophlebitis is discussed thoroughly and the most recent information on the treatment is given. This chapter, perhaps, contains the most valuable material within the book, since it covers a common condition frequently seen and

yet one which is remedial. The old standby treatment of elevation of the extremity is still adhered to in spite of recent articles which disprove its use. The intent is to establish a "brisk venous current in the many veins of the region which are not obstructed by the initial thrombosis." Abdominal tension is relieved to help attain the same result. Forcing of fluids helps prevent dehydration which the author again mentions as a cause of thrombus formation.

Varicose veins are covered carefully and adequately, and the latest technic of injection and ligation or the combination of the two, is given. The volume does not present the finer details of the different ramifications in the treatment of varicose veins and ulcers, but one must recall that this is just one chapter in a book covering a very large subject.

C. H. J.

THE NEW INTERNATIONAL CLINICS

Volume I, New Series Three

Edited by George Morris Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940.

The contents of this number of the New International Clinics are no exception to the exceedingly high quality of the preceding volumes. The modern concept of a wide variety of diseases is most interestingly presented by authorities in specific fields of medicine.

This issue of the Clinics contains eight original contributions, twelve clinics presented by members of the staff of the Hospital of the University of Pennsylvania, and a review of the present knowledge of vitamins by A. Cantarow, associate professor of medicine, Jefferson Medical College. The latter is limited to material bearing directly upon human nutrition and thus it is a consideration of the present clinical significance of the vitamins.

The vast amount of information included within the covers of this volume makes it a rich source of knowledge for any physician who wishes to keep in step with progress in clinical medicine.

D. K.

DISEASES OF THE GALLBLADDER AND BILE DUCTS

By Waltman Walters, M.D., and Albert M. Snell, M.D., The Mayo Clinic, Rochester. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.

This very fine publication was dedicated to the late Drs. William J. Mayo and Charles H. Mayo, two men who did so much to advance the knowledge of the gallbladder and its allied diseases. The foreword of this book was written by the late Dr. William J. Mayo.

The book is very comprehensive, beginning with the anatomy and physiology of the gallbladder and bile tract. A complete, although abstracted history, is given and ordinarily the obtaining of so much knowledge would entail a great amount of reading. Higgins has written the chapter on anatomy, Bollman the chapter on physiology and MacCarty the one on pathology. Each of these men has made his contribution to the volume equally good.

One is greatly impressed by the fact that the book is not entirely written by a surgeon or a medical man. Each has taken part in the chapter on diagnostic methods. A special chapter concerning x-ray diagnosis is splendidly written. The portion dealing with medical care of non-surgical gallbladder conditions should be read by every doctor of medicine. Equally valuable for medical and surgical men, or in fact for any doctor dealing with gallbladder disease, is the chapter on preoperative medical care. The plates and descriptions of surgical methods are a classic. The book also discusses at length the preoperative and postoperative care in the control of hemorrhage and jaundiced cases. Anomalies of the gallbladder and postoperative complications are adequately discussed. Vitamin therapy and diets have been considered. In fact, all available information concerning the gallbladder and biliary tract diseases, from the beginning of gallbladder surgery to the present date, has been splendidly considered.

It is impossible in a short review to do justice to this outstanding book. After having read it carefully this reviewer has determined to re-read several of its chapters because of the very valuable information contained therein. The writer can recommend it without reservation to each and every member of our State Society.

L. D. P.

SPECIALTIES IN MEDICAL PRACTICE

Two Volumes. Edited by Edgar van Nuys Allen, M.D., associate professor of medicine, University of Minnesota, Mayo Foundation. Thomas Nelson and Sons, New York, 1940. Price, \$25.00 per set.

This two volume treatise on medical specialties is published to give the general practitioner a symposium of what is important in the various specialties as they are now practiced. Edgar van Nuys Allen, the editor, has so assembled this excellent material that the general practitioner can refer to the modern views of the various specialists, and the specialist can more easily acquaint himself with other special fields and their association to his own. The authors have attempted to present their material so that the attending man will be able intelligently to diagnose and treat more common and less complicated diseases which reach the specialist.

Volume I has seven chapters dealing with ophthalmology, diseases of the eye, ear, nose and throat, neurology, psychiatry, the vitamins and vitamin deficiency diseases, allergy, and orthopedic surgery.

Each chapter is written by a specialist who is nationally recognized. The chapters on vitamins and allergy are timely because of the prevalent confusion between fancy and fact.

Volume II contains four chapters on obstetrics and gynecology, endocrinology, urology and proctology, and a fifth chapter on dermatology and syphilology in the process of being prepared. The chapter on obstetrics and gynecology includes ante, intra- and postpartum care, obstetric complications, medical and surgical complications, etc. The chapter on endocrinology discusses the last minute concepts of obesity, and the thyroid, parathyroid, pituitary, adrenal, pancreas, thymus and pineal glands, each in an individual section.

These volumes, covering approximately one thousand pages with illustrations, will prove to be a most important addition to the library of the aggressive practitioner, for within its chapters he will find a postgraduate course in the specialties, and it will afford him a means of ready reference in an age of medicine that is forever new.

J. W. C.

ST. THOMAS'S HOSPITAL REPORTS

Volume IV, Second Series.

Published by St. Thomas Hospital, London, S. E. 1, 1939. Price, 10s.

This is a small booklet consisting of interesting medical articles written by staff members of St. Thomas Hospital, London, during 1939.

The material consists of fourteen articles, each discussing an individual problem in medicine. The first article, on oxygen therapy, deals with the methods and the pros and cons of this treatment. The second paper is a review of the male sex hormone. Some of the subsequent presentations discuss vaginal discharge, acetylcholine and potassium in relation to cardiac function, cerebral abscess, insulin resistance and liver function, orbital inflammation, and estimation of the water-soluble vitamins in the body fluids.

Each article is an interesting symposium of a modern medical problem.

J. W. C.

THE THERAPEUTICS OF INTERNAL DISEASES

A four volume set edited by George Blumer, M.D., clinical professor of medicine, Yale University School of Medicine. Volume I, General Therapeutics and General Therapeutic Technic. D. Appleton-Century Company, New York, 1940. Price, \$10.00.

Therapeutics are constantly subject to new trends, and a broader knowledge of medicine is eradicating

empiricism and out-moded methods. This volume is a comprehensive treatise written by twelve recognized authorities dealing specifically with new methods and theories of therapeutics.

The first section includes nineteen chapters devoted to nutrition and dietetics, medical climatology, spa therapy, hydrotherapy, heat therapy, light therapy, electrotherapy, radiotherapy, occupational therapy, use of gases, endocrine therapy, specific serum therapy, use of vaccines, bacteriophage therapy and treatment in psychiatry.

The second section has ten chapters describing special therapeutic technic, oral medication, rectal medication, parenteral therapy, intradermal and hypodermic injections, blood transfusions, spinal punctures and paracentesis.

The text is a modern complete review of all the recognized general therapeutic measures with a lucid criticism of their values.

J. W. C.

THE THERAPEUTICS OF INTERNAL DISEASES

A four volume set edited by George Blumer, M.D., clinical professor of medicine, Yale University School of Medicine. Volume II, Drugs, Toxicology, and Infectious Diseases. D. Appleton-Century Company, New York, 1940. Price, \$10.00.

The second book of this four volume set on therapeutics of internal diseases is divided into three complete sections, each section devoted to one specific division of medicine and the therapy applied. Separate chapters of these sections are written by medical men well established and recognized in their specialties.

Section I deals with pharmacology and toxicology, and includes interesting chapters on cardiovascular drugs, diuretics, central nervous system stimulants and depressants, anesthetics, autonomic drugs, and drugs acting on blood-forming organs and on the reproductive organs. The shock syndrome and the treatment of specific poisonings are included here. Section II discusses specific therapy, primarily the care of the patient during the period of convalescence. Section III includes the therapy of all the infectious diseases, the opening chapter describing the general principles employed in the treatment of infectious diseases. This section possesses a wealth of timely therapeutic measures applicable in the virus and spirochetal infections, in rickettsioses and mycobacterioses and in bacillary and coccal infections. The last chapter evaluates treatment in infectious diseases of unknown etiology.

This second volume is a classical aggregation of all that is new and modern in the field of specific therapy. The authors excel in the employment of fact.

E. B. W.

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DES MOINES, IOWA, OCTOBER, 1940

No. 10

ACOUSTIC NEUROMA PRODUCING TIC DOULOUREUX

WALTER D. ABBOTT, M.D., and
BYRON M. MERKEL, M.D., Des Moines

The production of severe neuralgia in the distribution of the trigeminal nerve by an acoustic neuroma is rare and because of the paucity of cases a review of the literature with an additional report is presented.

Woolsey and Elsberg¹ described a case of trigeminal pain occurring in a patient with a neurofibroma of the nervus acusticus in 1904. In 1910 Weisenburg² reported a case of "cerebellopontine tumor diagnosed as tic douloureux for six years" in which various attempts at cutting the gasserian ganglion and sensory roots afforded respite from pain for only a day or two. Near the termination of this man's illness, the radiation of pain extended into the distribution of the glossopharyngeal nerve, and at necropsy a large tumor of the nervus acusticus was found which Weisenburg stated was a sarcoma. Hunt³ presented a woman before the Neurological Institute Conference in 1915 who complained of trigeminal pain, and a tumor of the nervus acusticus was demonstrated. Cushing's⁴ book on tumors of the nervus acusticus, published in 1917, revealed that in thirty cases there was a complaint of facial pain in four patients and in only one instance did the distress assume the proportions of major trigeminal neuralgia. In 1928 Parker⁵ reviewed fifty-three cases of acoustic nerve tumors at the Mayo Clinic and reported pain in four patients but, like Cushing's report, the suffering was intense in a solitary patient. Dandy,^{6 and 9} in advocating the posterior approach to the trigeminal nerve, in 1929 described one patient suffering from typical tic douloureux in which he removed a neurofibroma of the acoustic nerve. Since Dandy has been dividing the sensory root by the subcerebellar route during which the entire sensory root is always inspected, ten tumors in the cerebellopontine angle have been dis-

closed in 200 cases. Dandy does not specify that these were all acoustic neuromas but it is within the realm of speculation to presume that in this location this was probably the pathologic entity.

More recently, Hamby⁷ in 1935, reported one case of trigeminal pain with an acoustic tumor and Parker⁸ in 1937, described two cases. Parker's first patient suffered from severe trigeminal pain which failed to respond to multiple dental extractions. Later this patient had recurrent attacks of vertigo, diplopia and failing vision. He developed an ataxia and lost the hearing in the left ear. Neurologic examination revealed absent corneal reflex and deafness on the left, nystagmus and bilateral papilledema. There was a hypesthesia in the distribution of the left trigeminal nerve and incoordination of the extremities. A diagnosis of left acoustic tumor was made but the patient refused operation. The second case was a woman fifty-two years of age, who complained of lancinating pains in the right face and ataxia. Because of the patient's poor condition and uncooperative attitude the examination was difficult. However, when alcohol injection of the second and third divisions of the right fifth nerve was performed, she became more cooperative and it was found that the corneal reflex was absent on the left side. McConnell performed an exploratory operation in April, 1936, when a large acoustic neuroma was found on the left side which was partially removed; no evidence of neoplasm was evident on the right side. Unfortunately, death occurred from complications eighteen days later and at necropsy the remains of the neuroma were found on the left side. It had distorted the brain stem producing pressure on the right which caused the trigeminal pain.

ANATOMIC CONSIDERATIONS

Because of the proximity of the trigeminal, acoustic and facial nerves, it is easy to see where an enlargement of the acoustic nerve would cause compression of the posterior root of the trigeminal

nerve which is bearing sensory impressions to the pons as shown in Fig. 1. The upward and anterior enlargement of a neuroma of the acoustic nerve will cause distortion of the posterior root as shown in Fig. 2.

CASE REPORT

The patient, a white female, single, thirty years of age, was referred to one of us (W.D.A.) on December 22, 1936, because of pain in the right upper lip, nose and forehead of five months' duration. The pain was sharp and lancinating in char-

acter to move to the right and closing the eyes did not stop the vertigo.

Examination of the ears revealed the canals to be clean and dry. Both drums were of normal color and luster and all normal landmarks were present.

	Rinne	FORK TESTS		Bone Conduction
		Plus	Webber Not Lateralized	Minus 1 Minus 1
Right	Plus			
Left	Plus			

Examination of the nose and sinuses was negative. The eyes were negative and there was no spontaneous nystagmus. Examination of the throat was negative. A diagnosis of Meniere's syndrome was made.

On September 8, 1938, the facial pain recurred although there was still anesthesia in the distribution of the first and second branches of the right trigeminal nerve. It was noted at this time that there was a slight diminution of the right corneal reflex, but on rough test with a watch the hearing was equal on both sides. In view of subsequent

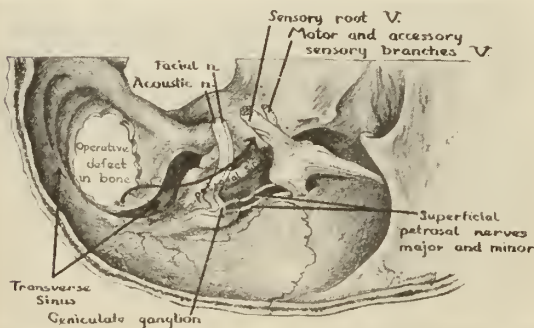


Fig. 1. Drawing showing relationship of the trigeminal, facial and acoustic nerves to the superior petrosal sinus. (Modified from Dandy, W. E.: *The Brain Practice of Surgery*. W. F. Prior Company, Hagerstown, Maryland, 1932. Fig. 74, p. 191.)

acter and was induced by touching the upper lip, talking or eating. General and neurologic examinations were negative except for a persistent trigger zone in the right upper lip; touching this area produced paroxysms of pain in the first and second branches of the right trigeminal nerve. A diagnosis of trigeminal neuralgia was made and because of the proximity of the holidays she preferred to attempt inhalations of trichlorethylene temporarily. However, the pain became more intense and on January 20, 1937, alcohol injection of the first and second branches of the right trigeminal nerve was performed. The patient was free from pain until September 1, 1937, at which time the radiation was the same as previously and the neurologic examination was negative. It was noted at this time that both corneal reflexes were present and equal. The alcohol injection was repeated on September 18, 1937, and again complete relief from pain was afforded. However, the patient was seen by one of us (B.M.) on November 20, 1937, because of vertigo, nausea and vomiting, stating that she had suffered from a head cold for the past four or five days which was mild and there was no ear pain. There was one degree of fever and she stated that upon getting out of bed that morning, she became quite dizzy; objects seemed

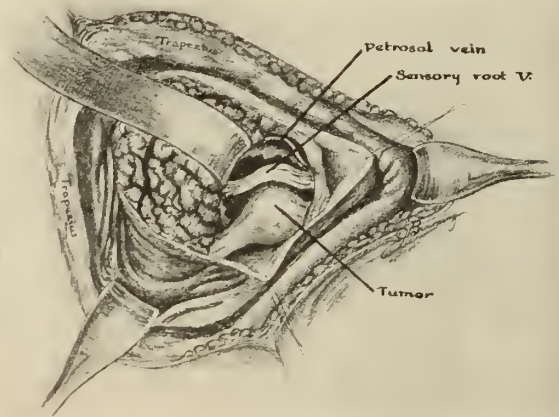


Fig. 2. Operative approach via cerebellar route revealing elevation of cerebellum and distortion of the fifth, seventh and eighth cranial nerves by the acoustic neuroma. (Modified from Dandy, W. E.: *The Brain Practice of Surgery*. W. F. Prior Company, Hagerstown, Maryland, 1932. Fig. 73, p. 190.)

findings, it is regrettable that an audiogram was not obtained at this time. Because of the history of an acute Meniere's syndrome and persistent anesthesia in the affected branches, exploration of the posterior fossa was advised with the possibility of an acoustic neuroma in mind.

On September 12, 1938, under avertin anesthesia, unilateral cerebellar approach was made and on elevating the cerebellum the fifth, seventh and eighth nerves were found to be stretched over a tumor mass which was yellow in color and approximately the size of a large hazelnut. This was removed piecemeal and the nerves were left intact. The muscle was closed with interrupted catgut sutures, the scalp with silkworm gut sutures. No

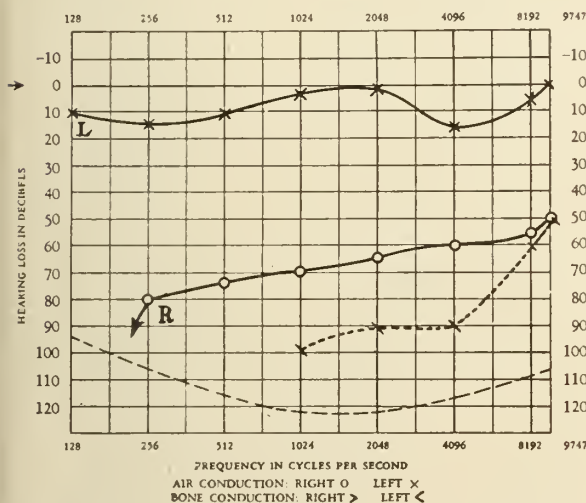
drainage was instituted. The microscopic diagnosis was acoustic neurofibroma.

Recovery was uneventful except for a partial peripheral facial palsy. Spino-facial anastomosis was suggested but the patient refused further sur-

the patient stated that she felt so well she was not disturbed by the weakness of the right facial muscles. Examination revealed complete return of sensation over the entire right side of the face.

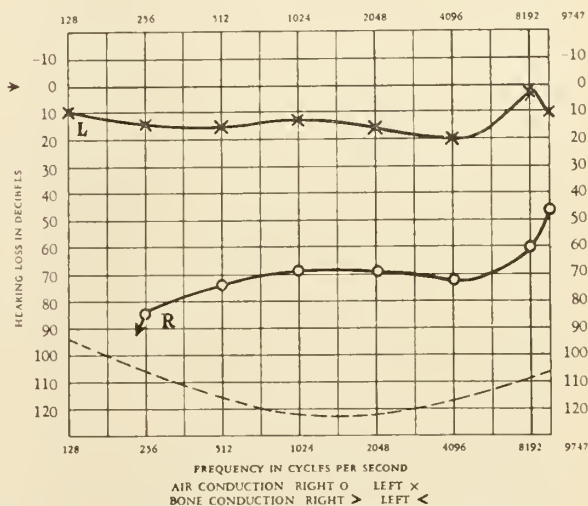
This patient was not examined again by one of us (B.M.) until after operation. Because of normal fork tests and her failure to report to the office for further checkup after her initial ear examination, we find ourselves in the regrettable position

C.P. AGE 32 DATE Nov 7 1938 NO. 1A



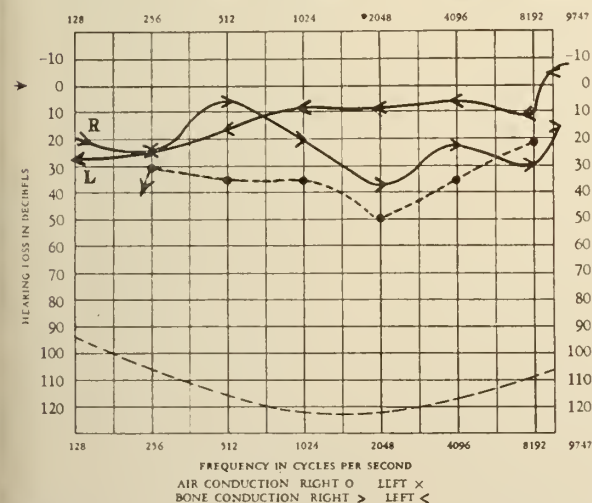
Audiogram 1A. Acoustic neuroma on the right removed September, 1938. Partial facial paralysis on right. Complete freedom from right facial pain. Right air conduction with 100 decibels masking noise on left ear.

C.P. AGE 33 DATE Nov. 18 1939 NO. 2



Audiogram 2. No masking noise. "Shadow curve" in right ear.

C.P. AGE 32 DATE Nov. 7 1938 NO. 1B

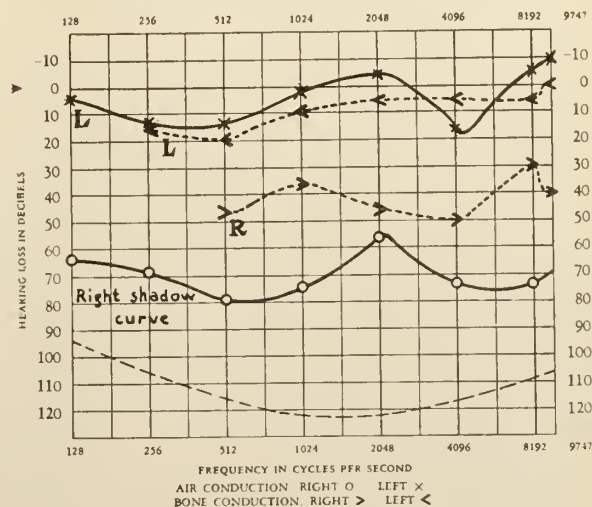


Audiogram 1B. Bone conduction on right with masking noise 100 decibels. Air conduction on left.

gery. The patient has been free from pain and there has been a gradual return of the function of the facial nerve to the extent that she can close the eyelids and the nasolabial fold is present, but there is a drawing of the angle of the mouth on smiling and she is unable to whistle. When seen on January 9, 1940, there were no complaints and

of not having any preoperative audiometric studies. The curves taken after operation show loss of function of the eighth nerve in its vestibular and cochlear portions. They also illustrate the "shadow curve" which may be falsely interpreted as

C.P. AGE 34 DATE MAR 26 1940 NO. 3



Audiogram 3. Postoperative acoustic neuroma. Some residual facial weakness on the right. No facial pain. No demonstrable hearing in right ear with 100 decibels masking noise in left ear.

showing some residual hearing when the proper masking device is not used.

SUMMARY

A review of the literature revealed only eighteen cases in which neuroma of the acoustic nerve produced typical pain resembling that of major trigeminal neuralgia. Where there is evidence of compression of the trigeminal sensory root and neighborhood signs such as diminished or absent corneal reflex, Meniere's syndrome and loss of hearing accompanied by ataxia and incoordination of the extremities, it is well to consider the posterior approach to the sensory root.

This report has been brought forth to call attention to the fact that the more simple methods of inhalation of trichlorethylene and peripheral or deep alcoholic injection are not sufficient to produce satisfactory and permanent relief from pain, and to sound a warning note that there has been insufficient grounds to justify the wholehearted sense of security which has been felt by advocates of the transtemporal approach to the posterior sensory root of the trigeminal nerve.

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GENERALIZED ITCHING*

RUBEN NOMLAND, M.D., Iowa City

Generalized itching is a symptom that is caused by a great many disorders and it is one of the most common symptoms which cause a patient to seek a physician. Many disorders can cause generalized itching and many of them have nothing in common except for this symptom. It is desirable to make a differential diagnosis of these disorders and to try to control the causative disorder, but in many conditions all that can be done is to carry out symptomatic treatment. With the exception of scabies in which specific local treatment is effective,

the control of generalized itching is based on alleviation of the symptom by local treatment and the carrying out of any general treatment which may help the causative disorder.

The most common cause of generalized itching is scabies and whenever an individual has generalized itching, scabies must be ruled out, because its treatment is so different from that of other disorders in which generalized itching is present. If one remembers that scabies has three outstanding characteristics, he will seldom miss the diagnosis. The diagnostic features of scabies are: first, several members of a group will have the disorder because it is transmitted from individual to individual; second, the itching is a great deal worse at night; and third, the diagnostic lesions of scabies, the burrow and vesicle, are found on the sides of the fingers, wrists, palms in children and the penis in men, places where other disorders with generalized itching practically never have their lesions.

The treatment for scabies is not difficult and almost any one of the methods described in textbooks will be satisfactory. Danish ointment has in our experience been the most effective local treatment. In most instances two applications of the ointment on successive nights are necessary. In a great many instances sensitivity to sulphur preparations or overtreatment of scabies gives rise to generalized itching which may be mistaken for scabies, and further treatment will aggravate the itching. It is important to differentiate between treatment dermatitis from sulphur and the itching of scabies. Treatment dermatitis from sulphur is best treated symptomatically as will be outlined later.

Generalized itching from animal parasites such as pediculosis corporis is very uncommon in practice. Individuals, who carry out even the simplest form of personal hygiene do not have body lice. If the individual puts on clean underwear before seeking the advice of a physician, it is almost certain that he will not have pediculosis corporis. It is seen primarily in the poorest and most illiterate people in the large cities.

Senile pruritus, winter itch and bath dermatitis are the most common causes of generalized itching aside from scabies. All of these disorders are worse in the winter time; the attacks of itching occur when the person undresses and he has few signs on the skin. The individual does not scratch himself but usually rubs to alleviate the sensation of itching. The itching is worse on the extensor aspects of the arms and legs with less itching on the body. Senile pruritus occurs in individuals beyond the fifth decade, but winter pruritus may occur as early as the fourth decade.

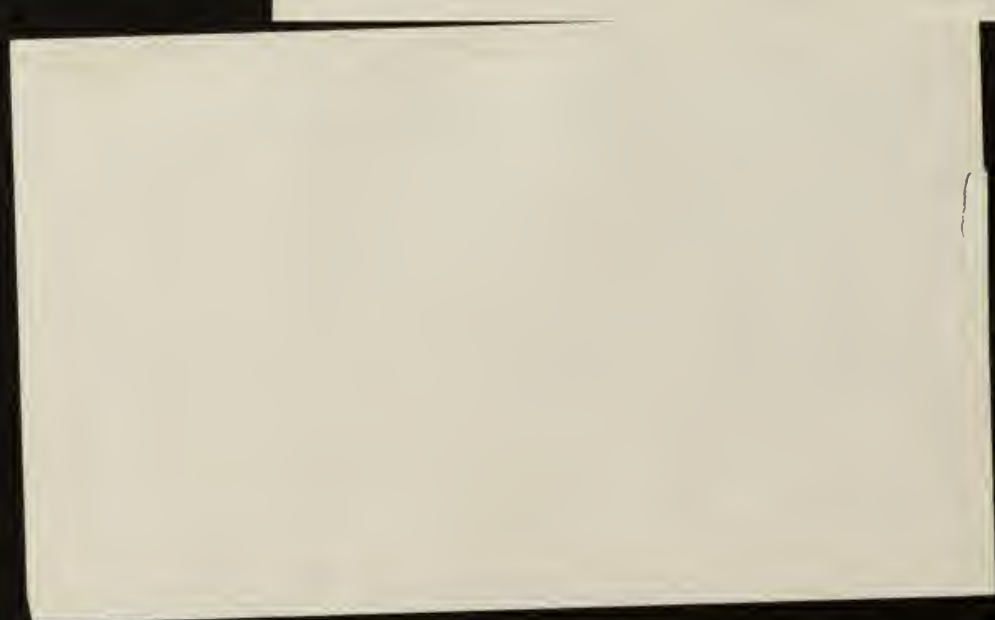
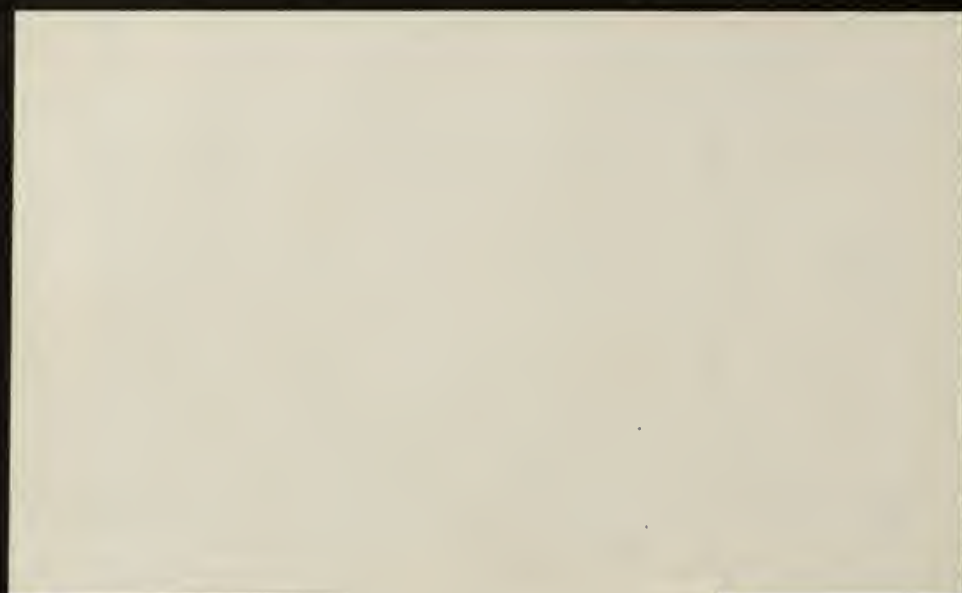
*Presented before the Eighty-ninth Annual Session, Iowa State Medical Society, Des Moines, May 1, 2 and 3, 1940.

GLEW, PERCIVAL BAIN BRIDGE - 1940 OBITUARY

114 J IOWA M Soc 1940 8: 421

HAMMER, MARION R. - 1940 OBITUARY

114 J IOWA. M. Soc, 1940, 8: 421



Except for the seasonal nature of the latter, the disorders are similar. Bath dermatitis is more common in women, particularly at middle age and beyond. The excessive use of soap removes the normal oils of the skin and itching is produced. Occasionally individuals are sensitive to perfumes and other ingredients found in soap. There may be a moderate amount of redness found on the extensor parts of the arms and legs. In all three of the disorders the skin is drier than normal. As a rule, the diagnosis of these disorders should be made only after other causes of generalized itching have been excluded.

The prognosis in senile dermatitis is relatively poor; only a moderate amount of relief will be obtained by symptomatic measures. In winter pruritus the outlook is considerably better but it may also be difficult to control. Bath dermatitis responds as a rule to treatment.

Occasionally generalized itching is a symptom of systemic disease. All physicians are familiar with the intense itching that frequently occurs in jaundice. Rarely does diabetes or nephritis cause generalized itching. In Hodgkin's disease generalized itching is a common symptom. It occurs in one-third or more of individuals with this disorder and it may be the presenting symptom. Intractable itching between the ages of twenty and forty that cannot otherwise be explained should lead one to suspect the possibility of Hodgkin's disease. Other disorders of a leukemic nature, particularly the chronic leukemias, frequently have intractable itching or other cutaneous findings as an outstanding symptom.

Itching of neurogenic origin has been assumed by many to be common and it is a diagnosis frequently made when itching occurs and no cause can be found. Neurogenic itching cannot be differentiated from disorders with generalized itching and the diagnosis of neurogenic itching should be made only when all other possible causes of the symptom can be eliminated. Occasionally individuals with neurogenic itching excoriate their skin a great deal so that one might think they are suffering from pediculosis corporis. On the contrary they may complain bitterly of their itching and show practically no evidence of scratching.

Itching from the application of external remedies for the control of other symptoms on the skin is very common, and therapeutic applications must be considered in the cause of generalized itching in all individuals who have used a local preparation.

Generalized itching occurs often as a symptom of many skin diseases. The diagnosis of these disorders is made by the duration, distribution and

elementary lesions which make up the disorder. Among conditions that can cause generalized itching are all forms of urticaria including chronic dermatographism and chronic papular urticaria of infants. This latter eruption with its excoriated lesions on the extensor aspects of the arms and legs of children is, next to scabies, the most common itching disorder of children. Drug eruptions, indeterminate toxic eruptions, lichen planus and dermatitis herpetiformis have mild to intense itching. All disorders of the eczema group including allergic eczema, contact dermatitis, infantile eczema and seborrheic dermatitis have local and occasionally generalized pruritus if they are at all widespread. Generalized exfoliating dermatitis of all types is associated with itching. Occasionally psoriasis and other skin disorders usually not accompanied by itching have this symptom. Many of the more rare skin diseases will have itching. The symptomatic treatment of generalized itching presupposes that any internal treatment or other treatment designed to find the cause of the trouble has been carried out. The accuracy of diagnosis of the cause of generalized itching is important because the systemic treatment is so variable.

The symptomatic treatment of generalized itching can be considered under three headings: first, internal treatment to decrease the sensitivity of the skin; second, the avoiding of further external irritation to the skin; and third, the use of soothing or antipruritic preparations on the skin. The barbitol group of drugs and aspirin both have the ability to decrease the sensation of itching. Consequently their judicious use will alleviate the symptom a great deal. Five grains of aspirin given several times a day plus one and one-half grains of phenobarbital at bed time will markedly decrease the intensity of a generalized pruritus.

The most important external irritant to avoid is soap; therefore, individuals with generalized itching must not have soap and water baths, but they may take a soothing bath. The simplest bath can be made by putting one-half to one pound of soluble starch (Linit) in a tub half full of lukewarm water. A more soothing bath can be made by the use of oatmeal and baking soda. This colloid bath is made as follows: one cupful of oatmeal is placed in a cloth bag and boiled for five minutes in two to three quarts of water. The oatmeal bag and water are then placed in a bath to which has been added previously two tablespoons of baking soda. The bag is squeezed and the individual takes his bath using the oatmeal bag as a wash cloth. The bath should be lukewarm and he may remain in the tub for as long as a half hour. After the bath the skin should be dried by patting and as a rule

an oily preparation such as calamine liniment, N.F., with one per cent phenol is applied to the skin. Because of the cost, local applications to be used to control generalized itching should be simple and inexpensive. In most instances the skin is too dry. In the simpler cases cottonseed oil may prove effective. Other preparations frequently used are calamine liniment, N.F., with one per cent phenol; five per cent boric acid and one-fourth per cent menthol in petrolatum or cold cream; and Lassar's paste, N.F., diluted with one or two parts of petrolatum. A non-oily preparation such as calamine lotion with one per cent phenol may be used as an interval application but because it is drying, oily preparations must be used once or oftener a day.

In conclusion it can be said that generalized itching is a common symptom of diverse causes. Except in scabies and other disorders where specific treatment is indicated, purely symptomatic therapy may be all that can be done. Symptomatic treatment as outlined is usually effective in alleviating if not completely controlling generalized itching.

HEADACHE*

JOHN C. PARSONS, M.D., Des Moines

It would seem certain that one of the oldest maladies of mankind has been pain in the head. Antique drawings and stone carvings have revealed graphic evidence of members of many olden races suffering from headaches. These pictures have also shown patients undergoing treatment of various sorts, undoubtedly directed against this same disturbance. Ancient skulls of the Incas and Aztecs, together with other skulls of races which preceded these peoples, show in some instances the effects of trephining, which was done in order to let the evil spirits out of the sufferer's head. In many instances, it may be inferred, not only the evil spirit but also the living spirit was released. Not too oddly, however, some trephined skulls have shown evidence of healing and no evidence of infectious erosion, so that the patient must have survived after his heroic operation for a good length of time.

ETIOLOGY

The causes of headaches are extremely numerous and even general groupings of causes create a rather unwieldy list. Perhaps the simplest classification would be one in which the cause of

headache is either intracranial or extracranial. Bortz¹ has given a very workable classification which is as follows:

1. Toxic
 - a. Exogenous: gases, fumes, drugs, foul air
 - b. Endogenous: toxemia or bacterial infection, systemic diseases (nephritis with uremia, biliary tract disease, rheumatism, diabetes, anemia, polycythemia, eclampsia, syphilis.)
2. Gastro-intestinal disturbances (constipation, dyspepsia)
3. Physicochemical disturbances (acidosis, alkalosis)
4. Cardiovascular disturbances (hypertension, valvular lesions)
5. Endocrine disorders (pituitary, thyroid, suprarenal, ovaries)
6. Gynecologic factors (puberty, menstruation, pregnancy, menopause)
7. Neurologic factors (nervous shock, exhaustion, worry, anger, excitement, tension, hysteria, psychoneurosis)
8. Diseases of special sense organs (iritis, glaucoma, adenoids, septal deviation)
9. Organic diseases of brain
 - a. Causing pressure (tumor, abscess, gumma, cysts, hemorrhage)
 - b. Vascular disease (arteriosclerosis, embolism, thrombosis, aneurysm)
 - c. Encephalitis
10. Meningitis (various forms)
11. Functional causes (trauma, sunstroke, noise, motion, irritation of nasal and throat mucosa by dust, pollens, etc., fatigue, eye strain, insomnia)

It is obvious that practically any infectious disease may cause enough toxemia so that headache might result. Because of that fact, the enumeration of the various infectious diseases will not be attempted. However, there are a few diseases of this type which will bear special mention. Outstanding are rheumatism and syphilis. Rheumatism may underlie a type of headache which starts in a draft of cold air, causing pain and tenderness in the scalp and neck muscles and which is often relieved by heat. Syphilis usually causes a dull type of headache, boring and constant and not relieved by any of the common remedies. In the later stages of syphilis the evidence may be very protean, even simulating the terrible pain of certain types of brain tumor.

It is interesting to note that the gastro-intestinal tract is so seldom incriminated in the causes of headache. "Gastro-intestinal upsets which pre-

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cede, accompany, or follow the headache are more likely to be an associated disorder than a causative factor."² An occasional overloaded stomach may be an etiologic factor.³ Constipation may possibly play a causal rôle through a mechanism which may be allergic in nature. Certainly, alkalosis due to partial or complete high intestinal obstruction is a very potent cause.

One of the most important causes of headache is the condition which also causes hypertension. It is important to remember that the hypertension itself cannot be said to be the cause of the headache, for it has been observed many times that a moderate lowering of the blood pressure immediately increases the intensity of the pain. Jane-way states that, "the typical headache accompanying hypertension wakens the patient prematurely, attains maximum intensity before breakfast and disappears during the course of the morning." McDonald⁴ and ⁵ feels that the headache of this type is probably due to one of three etiologic factors:

1. Toxic absorption from an inflamed kidney.
2. Accumulation of waste products due to renal failure.
3. Mechanical changes in circulation following the renal lesion.

The rôle of neurologic factors may be tremendously complex. Functional nervous disorders and psychogenic factors may be equally as difficult to diagnose as brain tumors or arterial degenerations. Exhaustion, worry, excitement, anger and nervous high tension may be invariable causes of headache in some individuals.

However, some of the most important causes of headache are those organic lesions found in the head itself. Bunts⁶ and ⁷ feels that although "headache is not commonly due to organic intracranial lesions, it is essential to bear in mind the possibility of such etiologic agents during the clinical analysis of any form of headache." These lesions may be located in the meninges, the brain, or the blood vessels. The meninges may be the seat of many types of inflammatory lesions. Headache with stiffness of the neck and a positive Kernig's sign should immediately suggest that a spinal fluid examination is expedient. Extradural abscess may result from inflammatory lesions. Tumors of the meninges are not infrequent and are usually of the endothelioma type known as meningioma.

Among the lesions of the intracranial blood vessels which may cause headache are thrombosis, embolism, syphilis, arteriosclerosis, hemorrhage and aneurysm. Spontaneous subarachnoid hemorrhage produces sudden severe headache, usu-

ally with collapse and stupor. Lumbar puncture reveals grossly bloody fluid. This hemorrhage is usually due to rupture of a small aneurysm of the circle of Willis or branches in its immediate vicinity.

Headache is common in actual diseases of the brain. Encephalitis may be caused by different types of filterable viruses or the toxins of various organisms. It may occur as the epidemic type or in conjunction with chickenpox, scarlet fever, mumps, brucellosis, influenza, measles, or even following smallpox vaccination. Abscess may follow invasion from infection in the mastoid or frontal sinus or in some cases from metastatic emboli from a pulmonary purulent process, most commonly from pulmonary abscess. Tumors of the brain may be primary or metastatic. They may occur at any age and are extremely varied in production of symptoms and signs. Headache is not necessarily a symptom of brain tumor, but when a tumor is so located as to cause obstruction of the flow of cerebrospinal fluid, intracranial pressure is increased and headache results.

Among the most common causes of headache is that occasioned by eye involvement. Those conditions which are causative may be either inflammatory in type, such as iritis, conjunctivitis or glaucoma, or more commonly, errors in refraction. It is said that the most common refractive error is hyperopia with or without astigmatism. Muscle imbalance also plays an important part in the production of ocular headaches. It is interesting to note that many nose and throat specialists feel that sinus disease and diseases of the upper respiratory tract are not a frequent cause of headache. Most observers mention that headache is not an outstanding symptom of sinus disease.

The functional causes of headache are many; trauma, sunstroke, noise, various types of motion, as well as those functional disturbances of the eyes just mentioned, may all be etiologic. Fatigue and insomnia may be causative factors; but of all the so-called functional disturbances, the one known as migraine is the most interesting. It is thought by most authors that migraine is definitely an allergic manifestation, but with a strong hereditary history.

Paterson⁸ gives a vivid picture of the changes in the brain, observed with the skull opened, and following an injection of 0.1 milligram of histamine intravenously: "The cortex flushes, the brain bulges, and pulsation increases. These changes progress for a further period of about twenty seconds, then pass off gradually. Just as the facial flush is beginning to fade, headache

starts, reaches its maximum thirty seconds later, and disappears about six to ten minutes later. Headache starts as the blood pressure is starting to rise and the cerebrospinal fluid pressure starts to fall. It is evident that headache results not from acute dilatation itself but from painful stimuli from vessel walls excited by the greatly increased amplitude of pulsation."

It is probable that the mechanism of migraine is exactly similar to that produced by histamine. Wolff⁹ and his co-workers, in a series of clinical investigations, have demonstrated that dilatation of cranial arteries (more especially the middle meningeal and temporal vessels) causes pain. Such a mechanism for pain has been demonstrated in four types of headache: that induced by histamine; fever headache; migraine headache; and hypertension headache. Ergotamine tartrate apparently gives relief by constricting the cranial arteries and thus reducing the amplitude of their pulsation.

Horton, MacLean, and Craig¹⁰ have reported on a new syndrome of vascular headache which is described as follows. Most patients were in the fourth and fifth decades; no familial or hereditary characteristics were noted. The pain was limited to one side of the head and was of a constant, burning, boring type, involving eye, temple, neck and often the face. The pain appeared and disappeared quickly and night pain was very common. Vasodilatation was found on the same side of the head as the pain, and was evidenced by swelling of the temporal vessels, engorgement of the soft tissues of the eyes, injection of the conjunctivae, plugging of the nose, watering of the eyes and flushing of the side of the face. Occasional nausea was noted but no action or gastrointestinal upsets were seen. A significant number of patients received relief from salicylates. Some were relieved by strong pressure over the eye or temporal vessels, and a few by compression of the carotid artery. Histamine administered subcutaneously, 0.3 to 0.5 milligram, reproduced the headaches. The temperature during attacks was one to three degrees, centigrade, more on the affected side of the head than on the other. The pain was thought to be due to vasodilatation. Treatment by desensitization with small increasing doses of histamine was largely successful.

Woltman¹¹ has outlined some questions to be asked in the history, in order to get definite information on the characteristics of headaches.

1. When did headache first appear? Did you never have headache before that?

2. How often do they come? How long do they last and at what time of day or week?
3. Do they awaken you from sleep? (Organic disease)
4. In what part of head is pain? Is it never in some other part? (Shift—migraine)
5. What is pain like?
6. Are headaches growing better or worse? Are there several types of aches?
7. Are there any warning or associated symptoms, such as numbness, spots before eyes, blurred vision, euphoria or depression? (Migraine?)
8. Does a delayed meal, sleeping late, fatigue, worry or excitement result in headache? What is relationship to menstruation or pregnancy? (Migraine?)
9. Do other members of the family have headache?
10. Does stooping, straining, or shaking head aggravate pain? (Organic or migraine)
11. Does a cold draft start it? Does heat relieve it? Are scalp or muscles of neck tender? (Rheumatic?)
12. Does use of eyes bring them on? Have glasses relieved them?
13. Does headache occur with hay fever, asthma, or following use of certain types of food? Is there a history of allergic diseases in the family?
14. Is the nose stuffy during the attack? Is there any associated nasal discharge?

These questions, together with those asked in a general history may be very helpful in arriving at a working idea before examination is done. Bunts⁷ states that if the history suggests an intracranial cause for headache one or more of the following examinations may be necessary to establish the diagnosis:

1. Complete physical and neurologic examination.
2. Blood counts and smear.
3. Blood Wassermann reaction.
4. Urinalysis.
5. Visual field examinations and ophthalmoscopic examination.
6. Plain x-ray of skull.
7. X-ray of chest (for abscess or tumor of lung).
8. Lumbar puncture and examination of cerebrospinal fluid. (Cell count, globulin, total protein, Wassermann, colloidal gold reaction, bacterial cultures, smear of centrifuged sediment).
9. Ventriculography or encephalography.

Wilbur and French¹² suggest that in other types of headache other special examinations may become necessary. They mention besides those just recounted, eye, ear, nose, throat, sinus and teeth examinations. Various tests for allergy may be necessary. Therapeutic tests are also listed as being helpful, the following being named: refractive tests on eye, intranasal therapy to various nerve ganglions, ergotamine tartrate, and psychotherapy.

TREATMENT

It is probable that the number of headache remedies which has been proposed is at least equal to, if not larger than the number of causes of headache itself. In cases of the occasional acute headache, many people find that acetyl salicylic acid or other drugs of the coal tar derivation are quite effective. The chronic recurring or constant headache is usually a different problem. In such a case early accurate diagnosis may be imperative. Only when a full understanding of the etiology of the condition has been reached, may treatment be wisely advised.

Treatment may be simple or complex, effective or ineffective. At opposite ends of the wide range of types of treatment may be two very divergent procedures: the ingestion of an aspirin tablet and the exploratory opening of the skull. Ergotamine turbrate may be almost miraculously effective in some cases of migraine, whereas in other cases of vascular headache it may become necessary to excise the stellate ganglion or even ligate one of the intracranial arteries. Fitting a pair of glasses is probably simple in contrast to the effective treatment of some types of virulent meningitis, but the headache may be no more severe in the one case than in the other. When our diagnostic abilities become more exact, and our visualization of the mechanism of the various types of headache becomes more clear, we shall be better qualified to "fit the punishment to the crime."

From the foregoing discussion it is probably evident that to many physicians, not only is headache a pain in the head involving great potentialities of etiologic complexity, but also a "pain in the neck."

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BACKACHE: MEDICAL PHASES*

HERBERT W. RATHE, M.D., Waverly

Backache as an entrance complaint is an every-day occurrence in the practice of most physicians. Mixer¹ has said, "Almost all the ills that the flesh is heir to may cause pain in the back." It is, therefore, very essential that the diagnosis of the etio-logic factors causing the backache be carefully searched out and referred to the proper specialists when necessary. The accompanying tables give a classification of the medical factors most often responsible for backache.

TABLE I. SYSTEMIC DISEASES

Smallpox	Addison's Disease
Undulant Fever	Paget's Disease
Influenza	Typhoid Fever
Pneumonia	Anemia
Scarlet Fever	Acute Arthritis
Infectious Mononucleosis	Chronic Arthritis

General systemic disease is a frequent cause of pain in the back. Infectious diseases such as smallpox, typhoid fever, pneumonia, and scarlet fever cause backache as an initial complaint. In smallpox this symptom is so prominent that it is of importance in differentiating it from chickenpox. Influenza, undulant fever, and infectious mononucleosis are infectious diseases in which back pain is not only an initial symptom but also a prominent complaint throughout the course of the disease. In cases with generalized backache and fever lasting over a few days, undulant fever and infectious mononucleosis must be ruled out. Whenever acute or chronic arthritis involves the spine, backache may result; however, extensive arthritic changes may take place in and around the vertebral column without causing pain. For this reason one must be very careful in attributing pain in this area to arthritis because some other important etiologic factor may easily be missed.

The next most frequent type of backache seen in general practice is that to which no definite cause can be assigned. Many persons who are suffering from nervous exhaustion complain of aching and weakness of the back. These individuals are eas-

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ily fatigued and seldom are able to localize definitely their complaints, which are usually multiple and extremely variable. Seldom is the pain severe, but it has the character of an ache which is most distressing in the early part of the day and gradually wears off by evening. Occasionally there will be localized areas of tenderness but these are variable also. As a rule, rest will give relief. This type of case must be carefully differentiated from those caused by metastatic malignancy and early neurologic disease. The former condition frequently causes bizarre symptoms and is extremely difficult to diagnose, due to the fact that bone metastasis may be present for months before definite x-ray changes are found. In the general examination possible primary foci of malignancy, such as a small tumor of the breast or prostate gland, should be looked for.

TABLE II. NEUROLOGIC DISEASES

Cerebrospinal Meningitis	Herpes Zoster
Syphilitic Meningomyelitis	Tabes Dorsalis
Tuberculous Meningitis	Multiple Sclerosis
Tumor of Spinal Cord	Acute Poliomyelitis

Pain in the back which radiates from the spine is often neurologic in origin. Early in the disease this may be the only symptom, and signs which will aid in making a diagnosis are entirely lacking. This is well illustrated by herpes zoster which causes severe pain radiating out from the spine without definite findings for several days, and then the typical vesicular eruptions of the skin over the nerve involved appear. In meningitis of all varieties, backache is a prominent early symptom and is always accompanied by stiffness. In the chronic variety due to syphilis the pain is usually more severe at night. Multiple sclerosis, acute poliomyelitis, acute myelitis, and cerebellar and spinal tumors are other neurologic conditions to be considered. In spinal tumors, there is definite tenderness and localized pain over the segment involved.

There are other less severe but not infrequent causes of pain and aching in the back. Among these is muscular fatigue which is brought on by overexertion, unusual exertion or poor posture. This may not be recognized by the patient, and careful questioning is necessary to elicit these factors. Fibrositis and myositis are probably the cause of numerous backaches. The common terms used to designate these conditions are lumbago, "a stitch in the back," and hexenschuss (witches' shot). They usually follow exposure to cold or strain and are relieved by rest, heat and gentle massage. It has been thought by some that focal infection plays a part in the causation of this type of backache, but it is my impression if this does

occur it is very seldom. Direct trauma is an important etiologic factor which needs only to be mentioned.

TABLE III. GASTRO-INTESTINAL DISEASES

Ulcer of the Stomach	Retrocecal Acute
Ulcer of the Duodenum	Appendicitis
Carcinoma of the	Hepatic Diseases
Stomach	Cholelithiasis
Pancreatic Disease	Spastic Colon
Rectal Diseases	Diverticulitis of Colon
Visceroptosis	Fecal Impaction

Backache as a result of disease in the gastro-intestinal tract is very puzzling. It has been said¹ that backache is a very effective smoke screen behind which a peptic ulcer may conceal itself. The appearance of a perforation, a hemorrhage, or relief from frequent feedings may be the first indication that the etiology is in the gastro-intestinal tract. The pain may be of a piercing variety in the area to the left of the tenth to twelfth dorsal vertebrae or as high up as the fifth and sixth dorsal area. Occasionally, a perforating ulcer involving the pancreas or the second portion of the duodenum will cause severe backache. Cholelithiasis is a frequent cause of pain referred to the area around the tip of the right scapula. This pain is usually radiating in character but may be localized. This is especially true when there is a stone in the common duct. Other affections of the liver such as congestion from heart failure, hepatitis and liver abscess will cause a similar distress. Carcinoma of the posterior wall of the stomach or pancreas may cause severe pain in the lower dorsal region. Spasm of the colon is often present in patients with nervous exhaustion who complain of backache. It is difficult to be sure whether the nervous exhaustion or the alteration of motility in the colon is the causative factor. Other diseases such as carcinoma or diverticulitis of the sigmoid and rectal fissures, fistula and tumors are said to cause sacro-iliac pain. Fecal impaction in the rectum will occasionally cause severe low back pain.

TABLE IV. UROLOGIC DISEASES

Nephrolithiasis	Perinephritic Abscess
(With or without colic)	Nephroptosis
Renal Infection	Hydronephrosis
Renal Tuberculosis	Posterior Urethritis
Renal Tumor	Prostatitis
Acute Nephritis	Vesical Calculus

For many years it has been advertised to the laity that kidney disease was the cause of all backaches. It is my belief that only a small percentage of patients with renal disease complain much of pain in the back. Nephrolithiasis in which the stone remains in the kidney or its pelvis will cause

pain in the lumbar region; after the stone moves into the ureter the pain is then anterior. Diseases of the kidney substance such as pyelonephritis, focal abscess and tuberculosis may cause pain in the costovertebral angle. Indefinite lumbar pain may result from renal tumors, hydronephrosis, and nephroptosis. Acute nephritis may be ushered in by a severe backache, but it usually subsides after the disease becomes established. Low back pain may result from posterior urethritis, prostatitis, and vesical calculus.

TABLE V. MISCELLANEOUS DISEASES

Subdiaphragmatic Abscess	Coronary Artery Disease
Muscular Fatigue	Dissecting Aneurysm
Thoracic Aneurysm	Trauma
Aortic Aneurysm	Fibrositis
Postural Defect	Myositis
	Metastatic Malignancy

Diseases of the cardiovascular system are less common causes of backache. Aneurysm of the thoracic and abdominal aorta may cause pressure on the nerves and erosion of the vertebrae. The resulting pain may be variable in intensity and often shooting in character. Occasionally a dissecting thoracic aneurysm may have back pain as its most prominent symptom. This pain is located in the mid-dorsal region and varies from a persistent dull ache to a severe cutting pain. In the presence of cardiovascular disease it is very important to rule out aneurysm when dorsal backache is the chief complaint. In the event of a syndrome suggestive of cardiac infarction accompanied by backache, dissecting thoracic aneurysm must be eliminated. It is very seldom that patients with coronary artery disease complain of backache; however, it has been reported that abdominal angina will have accompanying backache.

Recently we have encountered several of the unusual causes of backache, and a summary of these case histories and findings follows.

Case 1. The patient, G. R., a farmer, thirty-seven years of age, was admitted June 27, 1939. On August 11, 1936, the patient had had a perforated duodenal ulcer which was repaired. Following operation he had had an atelectasis at the base of the right lung and a severe infection of his operative wound. Convalescence was slow, but he gradually regained his strength and was able to do most of his farm work. He occasionally would have some epigastric distress and was very nervous and apprehensive. During this interval he also complained of right-sided backache which was not definitely localized. At the time of this admission he had had a cold and cough for three weeks. During this time he complained of a severe pain in the right lower dorsal region radiating to the right

shoulder. Pain and difficulty in breathing gradually became more marked.

Examination and Course. The patient was an ill appearing white male. There was dulness, suppression of breath sounds, and coarse râles at the right base. Temperature was 100.8 degrees, the white blood count was 14,700 with 85 per cent polymorphonuclears and a shift to the left. On two occasions Type VIII pneumococcus was easily typed in the sputum. After treatment with sulfapyridine he improved and was sent home on the tenth day. X-ray examination at this time revealed clear lung fields with slight elevation of the diaphragm on the right. On July 14 he again developed severe pain in the lower right dorsal region. Evidences of consolidation of the right lower lobe developed, and the temperature was elevated to 104 degrees. Sputum was again typed, and Type VIII was found. Sulfapyridine and 140,000 units of specific antipneumococcic serum were administered with little effect. During this time the backache was a prominent complaint, but there was no localized tenderness. On August 7 he re-entered the hospital. He appeared quite ill. The right chest was dull up to the apex, and there was marked tenderness below the right twelfth rib. X-ray examination revealed consolidation of the right lower lobe. His temperature was 104 degrees, and his white blood count was 15,450. It was our impression that he had a right lower lobar pneumonia and a perinephritic abscess. An exploration for this was carried out unsuccessfully. Two days later it was decided that the pain and symptoms were due to a subdiaphragmatic abscess, and a resection of the twelfth rib was done with the incision in the rib bed at the level of the first lumbar vertebrae. On making the incision it was found that the abscess had burrowed up onto the chest wall for a short distance. The abscess cavity was definitely subdiaphragmatic. Progress was very slow; signs of a right-sided posteriorly encapsulated empyema gradually developed and this was drained a month later. Convalescence was very rapid after this, and by December 1 he felt better than at any time prior to his ulcer perforation.

Comment. It is our impression that this patient had diaphragmatic pathology lying dormant for three years as a cause of his chronic backache. After the pneumonic infection this subdiaphragmatic condition became actively infected and caused acute backache in the same area previously involved.

Case 2. The patient, J. W., a grain dealer, fifty-nine years of age, was admitted July 28, 1939. For thirty years he had had pain in the back radiating

from the cervical region downward. It varied in severity from day to day. For several years he had noted his posture was more stooped, and it was painful when he tried to straighten up. Occasionally the pain would radiate into the chest and abdominal wall. Examination was negative except for stooped posture. On x-ray examination we found changes of bony structure of the skull, spine, pelvis and femurs typical of Paget's disease, and a diagnosis of Paget's disease was made.

Case 3. The patient, L. E. M., a farmer, sixty-one years of age, was admitted May 17, 1937. For three years he had had dyspnea, retrosternal pain and ashen cyanosis on exertion. The x-ray examination showed aortic elongation and dilatation of the descending thoracic aorta. The electrocardiogram showed left axis deviation, and a negative T wave in lead I. This patient was readmitted on March 4, 1939. He had done well on restricted activity except for some angina of effort. The night before his second admission he was awakened by a very severe pain in the mid-dorsal region. Dyspnea and cyanosis were marked. Morphine, grains one and one-half, was needed for partial relief.

Examination and Course. The blood pressure was 154/90; the patient was dyspneic, orthopneic and cyanotic; the cardiac rhythm was normal; and there was epigastric tenderness. After twelve hours the temperature was up to 103.4 degrees, and the white blood count was 9,550 with a moderate left shift. The negative T wave in lead I was more marked for twenty-four hours, and then the electrocardiogram was the same as it had been in 1937. Oxygen gave some relief, and after three days the temperature became normal. The blood pressure again rose to 230/120, and the patient improved markedly. After a week he was fluoroscoped, and it was thought that the descending portion of the thoracic aorta was somewhat larger than two years before. A diagnosis was made of arteriosclerosis, hypertension, and dissecting thoracic aortic aneurysm.

CONCLUSIONS

The diagnosis of the etiologic factors causing backache is one of the most important problems encountered by the medical practitioner. The differential diagnosis should be thoroughly considered from a medical viewpoint before gynecologic or orthopedic therapeutic procedures are carried out.

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BACKACHE: FROM AN ORTHOPEDIC STANDPOINT*

ARCH F. O'DONOGHUE, M.D., Sioux City

Some years ago the Clinical Orthopedic Society appointed a committee to study and report on the various etiologies of backache. Table I is an outline of this report. As may be seen the orthopedic

TABLE I. ETIOLOGY OF BACKACHE

- I. Acute Infectious Diseases
 - A. Colds and Influenza
 - B. Smallpox and Measles
- II. Ligamentous and Muscular Injuries and Insults
 - A. Lumbosacral Sprains and Strains
 - B. Sacro-Iliac Sprains and Strains
 - C. Postural Sprains
 - D. Fasciitis and Myofasciitis
- III. Bone and Joint Anomalies and Diseases
 - A. Elongated Transverse Processes
 - B. Sacrolizations and Lumbarizations
 - C. Spina Bifida Occulta
 - D. Isthmus Lesions
 - E. Spondylosis and Spondylolisthesis
 - F. Arthritis
 - G. Schmorl's Syndrome
 - H. Tuberculosis
- IV. Neurogenetic Lesions
 - A. Charcot's Joint
 - B. Neuritis
 - C. Tabes
 - D. Syringomyelia
 - E. Tumors
 - F. Hysteria
- V. Trauma
 - A. Fractures
 - B. Dislocations
 - C. Ruptured Intervertebral Disc (Discogenetic Syndrome)
- VI. Visceral Lesions
 - A. Gastro-intestinal
 - B. Urologic
 - C. Gynecologic

VII. Miscellaneous

phase of backache which includes sections two, three and five is a tremendous field. It is likely that every medical man who limits his practice to one branch of medicine or surgery becomes somewhat lopsided in his viewpoint and is likely to ascribe a great many of the ills which he hears about and sees to some pathology or syndrome in his chosen field, and so it undoubtedly is with backache. The internist thinks of backache primarily as a medical subject, the urologist as a urologic problem, and the gynecologist as a pelvic disturbance; and of course the bone and joint specialists are likely to ascribe most backaches to bone and

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joint anomalies. Backache has undoubtedly always been a problem in medicine but a problem which until the last forty or fifty years had never been approached in a spirit of real scientific investigation. I am still struck with the remark made by Willis¹ some years ago after he had made a very critical study of the anatomy of the lower spine from bodies which had been dissected by the classes at Western Reserve for many years. He found that practically none of the lower back joints, ligaments or other structures had even aroused enough curiosity in the minds of the students to induce them to make dissections of this area.

esses, spondylolisthesis, arthritis of the articular facets, ruptures of the intervertebral discs, etc., have been assumed to be responsible for backache. It has seemed that a much more common cause of backache has been little emphasized, and this form of backache may well be called postural. Goldthwait² and Brown³ have made some notable contributions to this phase of the subject, as also has Hauser,⁴ but as a general rule most of the men who talk or write about backache are somewhat inclined to lay special emphasis on the one phase of the subject which is of most interest to him, such as ruptured discs, lumbarizations, lumbosacral

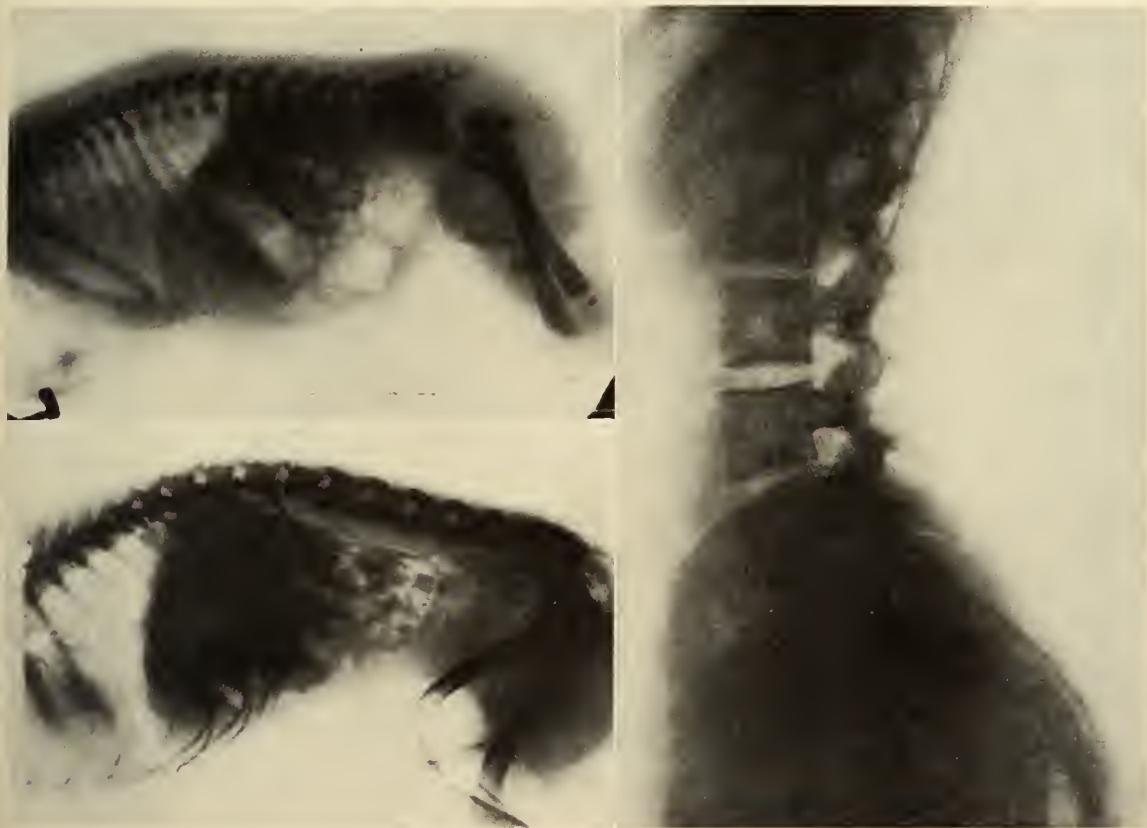


Fig. 1. Left, top, lateral x-ray of infant. Left, bottom, lateral x-ray of dog, showing practically the same curves in the adult dog as in the newborn infant. Right, lateral x-ray of normal, adult spine, showing development of anterior lumbar curve.

Backache was formerly called lumbago and allowed to go at that. As x-ray came into general use, however, the rôle of the sacro-iliac joint seemed to assume a great deal of importance to many men; so we found twenty-five years ago that most backaches were assumed to be due to luxations in these joints. As time went on it was obviously impossible to explain all backaches on sacro-iliac luxations, so then the rôle of the lumbosacral joint came to the fore and in late years anomalies of the bony structures in this region such as sacro-lizations, lumbarizations, enlarged transverse proc-

arthritis, etc. For that reason this discussion will be limited entirely to postural backache. Our late, beloved teacher, Henry Prentiss,⁵ once said that "A woman is a constipated biped with a pain in her back," and perhaps this discussion will bring out the basic reason for this remark.

It is well known that the back of a newborn infant and the back of a quadruped, such as a dog, have the primate curve; that is, a convex curve from the lumbosacral junction to the base of the seventh cervical with the convexity dorsal. In fact the lateral x-ray projection of an infant's back and

a dog's back are remarkably similar. It is not until the child has been walking vertically for some years that the usual adult type of curve establishes itself (Fig. 1). Even in adults the sacrum makes more or less of a horizontal line parallel with the floor and to assume the upright position nearly a full right angle curve has to be established between the sacrum and the thoracic spine. Brown³ has called attention to the fact that a joint in neutral position presents a large safety factor for additional stress in either direction, and illustrates this in the case of the wrist, which when it is in neutral position can be bent dorsally or ventrally, even with some force, without damage because of this safety factor. However, if the wrist is in full flexion to begin with and flexion is increased ligaments must tear and bones must break, or if the wrist is in full extension and further force is applied then again ligaments must tear and bones must break. It is a well-known fact that this is the precise manner in which a Colles' fracture occurs, that is, application of force to the palm of the hand when the wrist is in full extension as it would be when cranking an automobile.

To return to the back we find that due to this assumption of the upright position the lower spinal joints in the movable portion of the spine, which means of course the lumbar vertebra and the lower two dorsals, are already in a position of extension. In a normal spine with correct posture this angle is taken rather evenly through all the joints in the lumbar spine so that the body weight is taken largely through the bodies of the vertebra and intervertebral discs, and the articular processes serve more to lock the vertebra against forward slipping rather than actually to carry weight. If, however, the curve is excessive or if something occurs to disturb the normal support to the back the result is a position of poor posture and a marked exaggeration of the anterior lumbar curve. This completely erases the already slight margin of safety and throws the joints into full hyperextension where the least insult, trauma or excess weight causes severe ligamentous strain with accompanying pain. This pain is not necessarily in the lumbosacral articulation. It may be accompanied by a sciatica because as hyperextension occurs the foramen for the exit of the fifth lumbar roots becomes definitely narrowed and as weight or friction are increased on the lumbosacral articulation some swelling is likely to occur much as it would occur in a badly pronated foot, for instance, which by causing pressure on the nerve roots has a tendency to throw the sensation of pain down the backs of the legs. This same posture can also, of course, cause disturbance in either or both sacro-iliac

joints, for as the center of gravity is shifted more and more onto the back of the sacrum this bone has a tendency to rotate forward; thus the sacro-iliac joints are put onto a rotatory stress which may cause irritation to their supporting structures, with accompanying symptoms localized at the sacro-iliac joints.

The problem then is to determine why this occurs in some people and not in others and what to do when it does occur. All the joints in the lower back and pelvis are supported by heavy ligamentous structures which we know by various names such as the anterior, posterior and lateral spinous ligaments, the iliolumbar, lumbosacral, internal and external sacro-iliac ligaments, etc., but experience has shown, not only in these back joints but in all joints everywhere, that the ligaments are nowhere in the body able to sustain weight without help.

The back may be considered as somewhat analogous to the mast of a ship which must be supported from at least four directions by braces or stays which by their tautness and by their apposition to one another keep the mast in a vertical position. If one of the stays breaks or stretches the mast no longer remains vertical. So it is with the back whose main support is not the ligaments but a very complicated and beautifully arranged set of muscles which brace it on all four sides not only from their attachment to the bones of the back itself but also from their attachment to the rib cage which is in turn fastened to the back. The rectus then may be likened to the fore stay, the internal and external obliques to the side stays, and the sacrospinalis and erector spinae to the after stays. When these stays are all intact and working with proper tone and without undue fatigue, the back is held in correct posture and backache does not occur. If one or more groups or if all groups become weakened through lack of use, obesity, the physiologic stretching of pregnancy, chronic fatigue or improper working habits, the effect of debilitating disease, or of chronic over use, the patient in order to stand at all must slump into a position of lumbar lordosis so that the ligamentous structures are more and more forced to carry the body weight and backache results. A vicious cycle is set up, for as the body slumps into lordotic posture the abdominal muscles are stretched more and more and as they stretch they become consistently weaker and the lumbosacral angle becomes more and more acute. Here then is where the second part of Prentiss'⁵ definition becomes apparent and the patient complains not only of backache, but as the stomach sags into ptosis she complains of indigestion and gas, and as the transverse colon sinks

down below the iliac crests into the false pelvis she complains of constipation and colic disturbances of various types. There is no necessity of enumerating all of the symptomatic factors which arise from these postural deficiencies because they are all too familiar. The problem is first to arrive at a correct diagnosis for this type of backache and then to prescribe the correct treatment for it. We all know that when an ankle joint is strained or sprained we first prescribe rest in order that the swelling and inflammation may subside. This line of treatment has been known for ages and is universally used. It is also commonly known that if

by the haphazard application of a corset or belt because these instruments only compress the abdomen and do not support it. The support must be a brace of the Goldthwait type which has an upper support fairly high on the thorax and a pelvic support over the iliac bones. By this means the abdomen is actually supported, the weight taken off the lumbar spine and pushed up onto the dorsal spine, and the lordotic curve is immediately flattened. Such a case is here represented (Fig. 2). This patient had backache for many years which on investigation proved to be entirely postural. She stands with a marked lordosis and ptosis. Immediately



Fig. 2. Left, postural scoliosis. Center, lateral view of Goldthwait type brace. Right, posterior view of Goldthwait type brace. Notice the immediate correction of the ptosis and lordosis when the abdomen has support by a rigid brace anchored above to the thorax and below to the pelvis.

muscles are weakened by disuse or by paralysis these muscles must be supported to prevent further fatigue and stretching, and that a system of gradually increasing exercises must be carried out with support in a neutral position to bring back their power. These are the two elements which enter into the treatment of postural backache. In the first place the lordotic lumbar spine must receive support so that the ligamentous structures are relieved of their tension and the muscles are relieved of their deforming lordosis. The second step is the institution of a program to rebuild these muscles so that they may assume their proper function in supporting the spine. This cannot be done

upon the application of the brace both the lordosis and ptosis are largely corrected. However, this line of treatment without the use of gradually increasing exercises designed to strengthen the relaxed musculature would be of no moment because these patients should not be condemned to wear a supportive brace for the balance of their lives.

What exercises are to be used in connection with the supportive brace? Everyone who treats this type of disorder has a somewhat different system of building up the back and abdominal muscles, and they are all good. The important thing is to get the patient's cooperation and her understanding of what must be done to restore her to comfort,

and especially she should not get the impression that the brace alone is going to cure her because it is not. These people may well be first started in swimming, simply general swimming, to develop all muscles, because when in the water the body weight is not resting on the muscles which are relieved of all work except making motion. The second step is a rather simple series of exercises, such as crawling to get the patient used to moving around and for a general limbering up of all muscle groups. This then is followed by straight-over bending, and then by leg raising which normally should be done on a hard table or floor with the hands underneath the buttocks. In some obese or very severe cases one should advise the exercise of one leg at a time. Later prone falling against a wall should be instituted, and this may be changed to prone falling against the floor as strength increases. As the muscle groups develop and as the abdominal muscles are strengthened harder exercises are prescribed, such as leaning backward off a table and pulling the body into toe-touch flexion. All exercise should be followed by fifteen minutes' rest with the patient lying flat on the back with a sandbag underneath the shoulders and with hands above the head. Many other exercises may be used and they are all good. The important thing is that they must not be carried to the point of fatigue; they should be gradually increased as muscle strength returns and the brace can be gradually removed as muscle strength permits.

This has been only a brief review of a large subject, but it seems that orthopedic men generally have been making much too complicated a problem of backache. They have been too prone to be diverted to a single line of thought such as the rôle of anomalies, of arthritis, of disc lesions or neuro-genetic lesions, and have neglected the obvious, practical mechanical effect that posture has on the comfort of the lower back. To put it in another way, the trees have obscured the forest.

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BACKACHE AS SEEN BY A GYNECOLOGIST*

WILLIAM F. MENGERT, M.D.

Department of Obstetrics and Gynecology
State University of Iowa, Iowa City

Women and backache have become directly related in the minds of many doctors and most laymen. By custom and association women themselves tend to accept it as a cross which must be borne. It is only natural, therefore, that belief in a direct relationship with the specific organs of femininity should have achieved wide acceptance. As a result, and by popular consent, it is customary to seek a genital origin for all female backache, to the exclusion of causes originating in the back. It is the purpose of this paper to point out that, with the exception of a few well defined and recognized gynecologic diseases, backache is generally other than pelvic in origin. Above all, it is of the greatest importance to emphasize that minor degrees of pelvic abnormality do not cause it.

Backache, as a symptom of gynecologic disease, is generally produced by pressure or traction on, or induration and infiltration of, the pelvic cellular tissues and peritoneum, although pressure from ovarian cysts or fibroids which fill the pelvis may cause it. However, tumors of size sufficient to ride, like a pregnant uterus near term, upon the wings of the iliac bones no longer cause such pelvic pressure.

Traction from some type of genital prolapse, most commonly uterine, upon the posterior parametrium and peritoneum usually causes backache, as also may traction from a tubo-ovarian abscess or from a partially degenerated and adherent fibroid. Furthermore, the traction and inflammation produced by adnexal or pelvic inflammatory disease are common pelvic etiologic factors. Ectopic pregnancies with pelvic hematocele will act in a similar manner. Endometrial implants, especially those in the pouch of Douglas, produce scarring, constriction and traction.

Of the various mechanisms by which intrapelvic lesions produce backache, generally speaking the most common is induration and infiltration of the pelvic cellular tissues posterior to the cervix. Massive infiltration of the cellular tissues with carcinoma, postpartum or postabortal phlegmon, abscess and cellulitis generally produce pain in the back. Aside from massive involvement, occasionally an endocervicitis may produce a chronic posterior parametritis which causes a nagging and persisting backache. Such a contingency is dis-

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coverable upon palpation per rectum. Retroperitoneal tumors, while rare, produce such distortion of the cellular tissues that backache may occur. True pelvic abscess of the intraperitoneal variety not only produces pressure but also inflammation of the peritoneum and of the adjacent structures.

From the foregoing review, it is evident that pelvic disease causing backache is well defined and readily recognized, generally is severe, acts in a direct and easily understood manner, and always produces other symptoms. Unfortunately for the doctor, women with backache caused by such definite disease entities constitute only a very small fraction of those with the complaint. The great majority present no readily discernible cause on examination. As a result, it has long been customary to ascribe etiologic significance to comparatively insignificant pelvic abnormalities like cystic ovaries, retroversion of the uterus, and others.

Many ovaries contain one or more unruptured follicle cysts which seldom achieve a size greater than a walnut. Even if the follicle wall is unusually tough and is slow to rupture, the resulting retention cyst seldom reaches a size sufficient to produce distress by virtue of pressure or traction. Although long since abandoned by gynecologists, the operation of partial or total resection of such an ovary retains considerable favor as a therapeutic measure. Unfortunately, the vast majority of women so treated retain the backache, if not the ovary.

Retroversion of the uterus has been thought to produce backache by reason of pelvic congestion. Presumably "pelvic congestion" refers to interference with venous return as a result of backward torsion. The presence of such congestion is difficult to establish and even so does not readily account for backache. Many years ago, Tandler,¹ the Viennese anatomist, stated that physiologically the uterus is a movable organ and it is therefore impossible to speak of normal and abnormal positions. In other words the criterion of uterine normality is not a definite position, but rather the ability to move in all directions. In a recent study² it was amply demonstrated that "a uterus which is free both from old adhesions and active disease may alter its position in response to body postures if they are maintained for a sufficient length of time." It is inconceivable that an organ free to assume nearly any position in the pelvis could cause backache because it has assumed one of its possible positions. Finally, every gynecologist can recall examination after examination, where he has found a symptomless retroversion of the uterus. As the result of skepticism concerning

uterine retroversion as a cause of backache, round ligament suspension or ventral fixation of the uterus is now performed less than half a dozen times a year at the University Hospitals. Certainly, there are many times when the operation fails to cure, while on the other hand it would be interesting to know how many of the women operated upon for retroversion of the uterus would recover from the original symptoms with two weeks' bed rest without operation.

Unless there is definite and serious pelvic disease we must look elsewhere for the cause of backache, possibly at the back since that is the locale of the complaint. Of the various orthopedic causes the sacro-iliac joint probably produces nagging backache with acute exacerbations more often than any other single structure in women. They are peculiarly susceptible to exacerbations of sacro-iliac relaxation at the time of the menses, and during early pregnancy, because they produce a hormone containing a relaxing factor at that time. For these reasons, the gynecologist needs to be somewhat familiar with the milder types of relaxation.

As seen by the gynecologist, sacro-iliac relaxation causes a chronic backache, sometimes with radiation down the thighs. The patient complains of pain when she bends forward and occasionally on rising from a sitting position. A chronic sufferer almost never sleeps or reclines by choice on her back but prefers a lateral or prone position. Exercise increases the difficulty, so that at the end of a day the erector spinae muscle mass is tense, and the patient generally is tired all over. Occasionally tenseness of the erector spinae mass will produce shoulder pain or occipital headache. When the patient is examined in a standing position, a definite, circumscribed tender area about the size of a silver dollar will be found medial and inferior to the posterior superior spine of one or both sides. Sometimes there is sufficient relaxation so that movement of the two sides of the symphysis pubis may be palpated when the patient shifts weight bearing from one to the other foot.

Seldom appreciated is the fact that sacro-iliac relaxation may occasionally cause lower abdominal pain. This may be understood by remembering that anteriorly the sacro-iliac joint is inferior and lateral to the umbilicus. In thin women it is extremely easy to palpate, if the joint is normal. On the other hand, if there is much relaxation, the patient invariably tenses the abdominal musculature and hinders deep palpation. Considerable tenderness is evoked if deep palpation is insisted upon under these circumstances.

It would be folly for a gynecologist to offer an extensive discussion of sacro-iliac disease, but it is

good common sense to put a tight adhesive tape support on patients with suspected sacro-iliac relaxation. The worst possible harm to be produced is minor excoriation of a tender skin, whereas a number of patients will be greatly relieved.

Many other skeletal or muscular conditions can, and do, produce backache, but their diagnosis and treatment should be left to the orthopedist.

Finally for the sake of completeness, one must include diseases of the urinary tract. Like backache truly caused by gynecologic diseases, the urinary tract diseases which cause it are well defined and readily recognized.

In summary the attitude of the gynecologist is:

1. Certain definite and easily recognizable pelvic diseases cause backache which, however, is seldom the major and never the only symptom of the condition.

2. Minor degrees of pelvic disease do not cause backache.

3. The cause of most of the backaches in women will most likely be found elsewhere than in the pelvis.

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INDIGESTION AND ABDOMINAL PAIN*

W. D. PAUL, M.D., Iowa City

Department of Internal Medicine
State University of Iowa

Despite all our knowledge of disease, and the scientific aids which help in establishing a diagnosis, the abdomen still remains the "happy hunting ground" of medicine. The reason for this is obvious; any emotional upset, indiscretion in food habits, or change in environment may precipitate abdominal distress. In order to discover the reason for the patient's complaints and to decide whether these are manifestations of functional or organic disease, the physician must use every means of diagnosis available to him.

The majority of patients with disorders of the stomach usually complain of indigestion—a vague, indefinite symptom. The term indigestion is used by the average person to describe any distress that occurs in the abdomen. Very often it is called dyspepsia, nervous dyspepsia, gallbladder disease, gallbladder indigestion, chronic appendicitis, appendiceal indigestion, heartburn, and many other

terms. Obviously it is very difficult to ascertain just what the patient is complaining of when he uses such a vague term. No two people use the word "indigestion" to describe the same set of symptoms; therefore, it is necessary to take a very careful history in order to identify the underlying disease.

The average patient who presents himself with abdominal distress is a chronic sufferer and has usually made the rounds of clinics and physicians. In the search for relief he has spent a goodly sum, and, as a rule, may not be able to pay for expensive laboratory examinations. The patient can be spared unnecessary expense if the physician takes time to obtain a detailed history, examines the patient systematically, and performs only such simple laboratory procedures as are deemed advisable (such as searching stool for occult blood or performing a leukocyte count).

In taking a history it is necessary to start at the beginning rather than with the last most recent symptoms, which, of course, are still uppermost in the patient's mind. The patient is usually trying to impress the physician with the severity of his disease, and the doctor may have to direct the story carefully, even to the extent of asking direct questions. If one suspects that the patient is not suffering from organic disease, it is always advisable to get him to chat about his childhood. In this way it can be learned whether he was nervous, as a child; whether he had tantrums or conflicts; and whether his early environment played a rôle in the production of his symptoms. In many instances it may be found that the patient had abdominal distress in childhood not unlike that which he is now having. It may also be necessary to inquire about his eating, sleeping and bowel movements because his habits with regard to these things may help to produce his symptoms. The nature of his work may be a factor in causing or aggravating the distress.

A brief case report will show how a detailed history enables the physician not only to arrive at a diagnosis, but also how to treat the patient. A woman, twenty-eight years of age, entered the University Hospital complaining of gallbladder trouble. The complaint was mainly of recurring pain in the right upper quadrant which radiated to the scapular region. These attacks were usually associated with "gas," and followed the ingestion of fried or greasy foods. On one occasion she was given an opiate for this pain. She was constipated, and resorted to all sorts of laxatives. Her past history was irrelevant except for the fact that her right tube and ovary had been removed. There was no history of jaundice or clay-colored stools.

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The physical examination was entirely negative. She was examined not only by the internist, but also by the gynecologist, the surgeon, and the otolaryngologist. All routine laboratory examinations were negative. Roentgenologic examination of the chest, spine, gastro-intestinal tract and gallbladder showed nothing abnormal.

Because nothing could be found to account for her pain, an attempt was made to obtain a detailed history. We found that she was an only child; she had had no tantrums and she had liked school; but she did have a certain amount of constipation because her mother's insistence that she have a daily bowel movement had led her to give the child laxatives. When she was ten years old her home was destroyed by fire, and during the fire her father was severely burned. He succumbed within a few days after the disaster. Shortly thereafter the neighbors "spread a rumor" that the child's mother had set fire to the house in order to kill the husband. The child worried a great deal, wondering whether or not the rumor was true. Her mother became despondent and finally committed suicide. The girl was fourteen years of age at this time. She left school and began working as a waitress in a hotel. Soon afterward she developed abdominal distress, with some belching, and had to resort to laxatives every night. At the age of sixteen years she married. She admitted she did this only to get a home and clothes. After her marriage she no longer had abdominal distress, and was bothered only occasionally with constipation. Later she became pregnant and had a normal delivery and puerperium.

Eight years after the marriage her husband lost his position and was unable to find another. He became irritable, began to drink, and finally deserted his family. In order to support her son she again tried to find employment. She developed constipation, "gas," and severe lower abdominal distress. An exploratory operation was performed, and the right tube and ovary removed. The constipation and "gas" continued, but she no longer had abdominal pain. About six months later the pain returned, but this time it was located in the right upper quadrant and radiated to the scapula. She had found employment as a waitress and was contemplating getting a divorce. The distress and constipation continued, and it was for this reason that she came to the Hospital.

The above history is self-explanatory, and points out clearly how the abdominal distress paralleled the important events in her history. The treatment of this patient was very simple, for she herself realized that her symptoms were the result of economic stress, and admitted that as soon as the

divorce was obtained she would feel better. Emotional patients, after a detailed history has been obtained, usually realize what their difficulty is, and the treatment from then on is very simple.

Indigestion may result from organic or functional disease, and may be caused by a lesion in the stomach or any other organ in the abdominal cavity. The cause of this indigestion is a spasm of the pyloric end of the stomach which occurs at the same time that the gastric muscle is under tension. In some previous work, Dr. Smith and I have shown that this symptom could be produced in normal persons by increasing the pressure within the stomach and blocking off the pyloric canal,¹ so that the pyloric end of the stomach would become spastic. At such times the peristaltic waves were seen to pass over the pyloric end, and at this moment the patient complained of distress. This same pyloric spasm and increased gastric tension can be reproduced in humans by inflating the large bowel,² and in animals by placing an irritant in the gallbladder.³ Since any emotional or extragastric lesion may precipitate this reflex, it is difficult to differentiate organic from functional lesions.

In order to do this a careful study must be made of the pain of which the patient complains. The character of the pain may be described as "gnawing" or "burning," as in cases of peptic ulcer, and when it starts, its character does not change until it is relieved. The indigestion which occurs with gallstones may be of a "bursting" quality. Angina of effort is usually a vice-like or knife-like pain, and in coronary occlusion may be so severe as to defy description. The pain associated with renal or gallstone colic may start as a dull ache, and then increase in intensity until it becomes intolerable. True intermittent or rhythmic pains which are sharp and last for a few moments, and then subside, but recur within a few minutes, are characteristic of obstruction of the small intestine. Heartburn, or the feeling of chemical heat, which is located beneath the sternum, is frequently associated with functional, rather than organic, distress. Diffuse abdominal burning or crawling sensations are encountered chiefly in emotionally unstable persons.

The severity of pain is hard to measure. It is always well to attempt to ascertain whether the complaint is more appropriately described as a pain or as discomfort. True pain is more likely to indicate organic distress. It is well to inquire whether the pain is worse than that of labor or a toothache, or whether it has caused the patient to take to his bed. Pain which requires morphine for relief may be true pain, or the opiate may have been given because the physician knew the patient

was a psychoneurotic, and used this as an easy means of satisfying him. The physician should attempt to learn from the patient what his threshold of pain was at the time of the attack, for emotional factors may lower this threshold.

Pain may be localized or generalized, and is best judged by watching the patient while he is having it. If the distress is severe his very gestures will tell where the pain is situated and whether it is radiating. The patient with lead colic may lie on his back, flex his legs on his abdomen, or push on the wall with his feet to obtain relief. Perforating peptic ulcer may cause the victim to double up and at the same time place his hands over the upper abdomen. The ordinary peptic ulcer distress is localized just below the xiphoid cartilage, and the area can be covered with the tip of one or two fingers. In renal colic the patient can usually locate the stone by pointing with one finger. Angina of effort usually causes pain over the precordium which radiates down the arms or into the neck. Gallbladder colic, as a rule, occurs beneath and below the right costal margin, and the area of pain may be covered with the palm of the hand. This pain usually radiates to the scapula or interscapular region, rather than to the shoulder. In a case of constipation, the patient, when asked to localize the area of tenderness, invariably uses the palm of the hand, and rubs it over the entire upper abdomen; he may even outline the course of the colon.

The duration of the pain is important because from it we can learn something of the cause. The pain of coronary occlusion may differ from angina of effort, not so much in severity or radiation, but in duration. Peptic ulcer distress may last for an hour or more, usually until the next meal. Renal or biliary colic may last for hours, or until the attack is terminated by opiates. On the other hand, the pain of gastric carcinoma may be present all the time, but is intensified by eating.

The distress of peptic ulcer or pylorospasm, the distress of constipation or chronic cholecystitis, may occur at special times during the day. This event usually takes place when the stomach is empty; that is, within an hour or two following a meal. Angina pectoris is generally absent during rest and is precipitated by exercise or excitement. Severe abdominal pain which comes at rare intervals and bears no relation to meals or exercise may be indicative of tabetic crisis or gallstones. Coronary occlusion has a predilection for the early hours of morning, after the first sleep; whereas the hunger pains of duodenal ulcer often awaken the patient between midnight and 2:00 A. M., and biliary colic usually awakens the patient at a somewhat later hour.

The aggravating factors are also important. Many people state that they cannot eat fried or greasy foods because they precipitate indigestion. Usually this occurs in obese persons or those who are supposed to have gallbladder indigestion. People with peptic ulcer may complain that acid or rough food starts their distress, while those with constipation are always made worse by cathartics, worry, overwork or overeating. Trauma is another factor which increases distress, particularly in cases of peptic ulcer. Riding a tractor or continuous jarring may initiate the discomfort, whereas a blow on the abdominal wall not infrequently causes gastric hemorrhage.⁴

Besides factors which aggravate distress, there are many ways in which relief is obtained, and this must also be taken into consideration. All patients with indigestion obtain relief from belching or taking soda. If these patients are watched carefully it will be seen that it is not the soda which gives relief, but the belching, which reduces the intra-gastric tension and thus relieves pylorospasm. The pain of peptic ulcer can always be relieved by taking food, belching or vomiting. Patients with constipation obtain relief from belching, passing gas, and bowel movements. Gallstone colic may be relieved by opiates, and the milder forms of gallbladder distress may be relieved by vomiting.

If we proceed in the manner outlined above, the diagnosis can often be made without resorting to laboratory procedures which are either costly or not available to the average physician. Peptic ulcer illustrates these facts more clearly than any other disease. The patient with peptic ulcer usually has a very long history. At first he notices a slight amount of epigastric distress which comes on in the spring or fall of the year, and is relieved by taking food. This may recur for two or three days, and then the symptoms terminate spontaneously. A few years later he may have the same distress again; it occurs at the same time, but may last a little longer than it did the first time. These attacks occur at more frequent intervals until, finally, either during the fall or spring of some particular year the distress becomes more severe, and with it there are constipation and probably some nausea and vomiting. Until this time the pain has been dull, burning and not very severe; it is situated in the epigastrium, is well localized and does not radiate. It recurs at regular intervals during the day. It may be precipitated by working, worry or constipation, and may be relieved by taking food, belching or vomiting. At first the periods of remission are long, lasting sometimes for years; later the periods of remission are shorter. At this time only a provisional diagnosis of peptic ulcer

can be made, since the above symptoms also occur with almost any disease. If this patient now develops a complication, we are sure that he has a peptic ulcer. The complications are the severe pain of partial perforation; severe pylorospasm, causing temporary pyloric obstruction; hemorrhage; true perforation; or alkalosis. If the history indicates that one of these complications occurred at a time when the patient was having distress, one can be reasonably certain that the disease is organic, and that it is peptic ulcer.

In cases of gastric carcinoma, on the other hand, the history is shorter. The symptoms start insidiously, but soon the patient begins to lose weight and develop other signs of cachexia. Chronic constipation may also be diagnosed by applying the foregoing principles. Usually it occurs in nervous, high-strung individuals who worry a great deal, or have some financial difficulty. The patient complains of epigastric distress which does not radiate. This will recur after meals, or when the stomach is empty, and is relieved by taking food, soda, belching, passing gas or bowel movements. These patients differ from those with peptic ulcer in that they do not have long periods of remission, and their distress always parallels some mental trauma or financial worry. Many of these patients have distress all the time, but none of them presents any of the complications which occur with peptic ulcer.

The question whether there is such a thing as chronic appendicitis has caused a great deal of discussion and has been difficult to answer.^{5 and 6} Ordinarily, the person who has pain in the right lower quadrant is constipated, and when one obtains a good history one finds that the symptoms do not suggest organic disease. Many of these patients have been operated upon earlier, often with temporary relief. Quite often the distress will be found to be localized in the skin over the right lower quadrant, rather than deep in the abdominal cavity. It is for this reason that some of these people have the same distress after appendectomy. Some of them can be relieved by novocaine injections into the skin, and in this way a true diagnosis may be established.

Mucous colitis is another common form of functional disturbance which can be diagnosed if the various hints outlined above are carefully followed. In most of these cases colitis has been diagnosed at one time or another, and we know that this is not a diagnosis, but a name for a disturbance of function. Most of these people have a spastic or hypersensitive colon, and, after using various diets and cathartics, they pass a little mucus in the stool. If one can gain the confidence of these patients, a little detective work soon en-

ables the physician to discover what the emotional strain was that precipitated these attacks. Most of these patients are very unhappy, and cannot be treated with diet or medication alone. They must be assured that they have no organic disease; they should be reassured from time to time in order to keep them convinced.

Another common complaint is of a severe pain in the upper abdomen, usually in the mid-line over the abdominal aorta. Most of these people are thin and are more than likely to have some constipation; there may have been an emotional element, or even a temporary gastric "upset." When they have a little distress they will palpate the abdomen, and soon they find a pulsating mass in the epigastrium. After their attention is attracted to this they discover that pressure over this pulsating mass causes distress, or even severe pain. Soon they try to guard that portion of the abdomen against trauma. This distress becomes so severe that finally even the rubbing of the clothes over this area causes pain. These patients, of course, must be assured that they are palpating a normal aorta. Many of them lose their distress completely if they gain a little weight.

Much has been heard and written about visceroptosis.⁷ Most people who have studied the physiology of the gastro-intestinal tract are convinced that such a disease does not exist. Those who are said to have visceroptosis are tall, thin people whom nature has built in such a fashion that the stomach can occupy only an upright position. In order to make the stomach lie transversely in these patients one would have to remove the liver and distend the abdominal cavity. Careful observation of these patients reveals the interesting fact that it is not visceroptosis which causes their distress, but rather some functional disturbance, such as constipation or worry. These patients are treated in the same way as those with functional bowel disease.

Spondylitis may cause severe abdominal distress and thus lead the patient to consult a gastro-enterologist. In many such cases the history is again helpful, in that the patients complain either of generalized arthritis, sciatica, painful neck or back, or sacro-iliac strain. Whenever a patient has abdominal distress, an effort must be made to rule out lesions of the spine. Recently we examined a woman with typical gallbladder distress, but there was no history of jaundice. This distress was initiated by eating greasy or fried foods, and was relieved by nausea or vomiting. Roentgenologic examination of the gallbladder revealed that it was functioning normally; no stones could be found. While the roentgenologist was looking at these

films he happened to notice a compression fracture of the spine. Orthopedic treatment of her fracture relieved abdominal distress.

Many people are said to be sensitive to certain types of foods, but unfortunately it is very difficult to discover exactly to which food a patient is sensitive. The average person, when asked if there is any food which causes distress, can always recall some specific instance when he developed abdominal distress after eating a certain food.⁸ This has been studied very carefully, and it has been found that most normal persons are sensitive to some particular food.^{9 and 10} If this is true, one can readily see why people who have any abdominal distress soon find some food which supposedly initiates or aggravates their troubles. There are two main ways of finding out which are the offending foods. One is by skin sensitization tests, which rarely, if ever, give any help. The second is by having the patient keep a food diary. If the patient is sensitive to some food, this particular food soon makes its appearance in the food diary, and can be eliminated from the daily diet.

The treatment of the various forms of abdominal distress depends on whether they are functional or organic. If they are organic specific methods, such as cholecystectomy for gallstones or antisiphilitic treatment for a tabetic crisis, must be used. Since the distress of peptic ulcer is always intensified by worry and constipation, the treatment of this disease is about the same as that of other functional distress. The recognized treatment for peptic ulcer is dietary, but how the patient eats is often more important than what he eats. The patient with a peptic ulcer must first be told that his distress may recur at any time, and that if he has the same symptoms again, whether it be the next fall or ten years later, he should begin the same treatment he has used in the past, rather than run from doctor to doctor to find out whether he has some other abdominal disease. Patients must be instructed how to live; how to avoid becoming angry; to know that they must be more careful when faced with financial trouble; and, above all things, they must be warned against the use of cathartics. The average ulcer patient without a complication can be treated with any sort of a diet, provided the food is soft and the patient eats slowly. The average patient with peptic ulcer can obtain relief from any medication if he lives regularly and watches his eating habits. It is not necessary to make the patient take medicine every hour or two, and to carry milk and cream wherever he goes. A bland diet, with milk between meals and before going to bed, with probably a little belladonna or atropine, or, if necessary, some alka-

line powder, may be sufficient. Of course, the complications may require that the patient be put to bed or hospitalized.

The treatment of the other functional diseases of the abdomen are very difficult because they take much of the physician's time and depend upon the intelligence of the patient. If the patient's intelligence quotient is very low, it may be useless to make any pretense at treatment. On the other hand, if the patient's intelligence quotient is high enough, his history should be explored carefully, and the symptoms discussed. An attempt should be made to show the parallelism between the distress and the precipitating factors, so that the patient can readily see for himself why he had distress at certain times. His life must then be regulated. If he is working too much and cannot afford to discontinue working, he must be shown how to do the amount of work required of him and yet obtain mental rest. He must be told to eat at regular hours, must be warned against the use of cathartics, and, if necessary, be given a bland diet. Lubricants, such as mineral oil, may be used; glycerine suppositories may be advised, or small enemas taken. At no time should the patient be told that his pain is imaginary, because the pain is real, and only the patient knows how real. He must be told that there are thresholds of pain. Under certain mental stress the threshold is so low that the pain becomes rather severe.

In conclusion it must be emphasized that an essential to the correct diagnosis of abdominal pain is a knowledge of the various pain syndromes, both functional and organic. The symptom of pain must be analyzed as to its character, severity, localization, radiation, duration, frequency, special times of occurrence, and aggravating and relieving factors. These factors can be thoroughly investigated and skillfully interpreted by obtaining an exacting history.

X-RAY ANEMIA AND X-RAY DEATH OF SMALL ANIMALS

M. C. TERRY, M.D.

U. S. Veterans Hospital, Knoxville, Iowa, and

S. B. McFARLAND, M.D.

U. S. Veterans Hospital, San Francisco, California

Fabricius-Möller,¹ in a study of the hemorrhagic diathesis produced in guinea pigs by the action of x-rays, found that irradiation with seven or more Holzkecht units was invariably fatal and that death occurred about the thirteenth day. Five to six units were not always fatal, but always produced an anemia which appeared seven or

eight days after irradiation. He quotes Heineke who in similar experiments found that death occurred about the tenth day.

Wright and Bulman² and Russ. Wright, Bulman and Clark³ made similar experiments with cats and found that seventy-five minutes' exposure invariably killed in five to twelve days. Sixty minutes' exposure did not always kill, but always produced an anemia which was definite by the twelfth or fifteenth day.

Wright and his colleagues frequently observed a green color and a positive indirect van den Bergh reaction in the blood serum of their animals which suggested to them a toxin, produced directly by the rays. The interval between irradiation and the appearance of anemia and the curious regularity of death about the tenth to the thirteenth day (which Fabricius-Möller speaks of as a "mystic death") has led us to consider the possibility of a more slowly formed hemolytic antibody.

If such an antibody were produced by the irradiation it might be expected to arrive at its maximum about the time when, with such curious certainty, the findings of Fabricius-Möller and others so regularly appear. Its initiation might be conjectured as due to a denaturing effect of the rays on the animal's red cells, sufficient to render the cells to some degree antigenic. Recent studies⁴ and ⁵ have brought evidence of this possibility by showing that the employment of physical and other agents, cold and bacterial toxins for examples, may result, after an interval, in the production of what may be called auto-antibodies harmful to the animal.

An experiment of Lacassagne and Lavedan⁶ seems to point in the same direction. These workers x-rayed pregnant rabbits a few days before parturition and found that while the newborn were normal and thrived normally at first, after awhile they broke down and showed hemorrhagic tendencies.

For our experiments we chose full grown Flemish albino rabbits and exposed them to irradiation in doses of from 876 to 2,000 roentgen units delivered through 0.5 millimeter of copper at a distance of 50 centimeters. Lacassagne's experiment suggested that if a hemolysin could be produced in this manner its production might be better assured if we had a depot of cells to receive the effect of the rays. Accordingly we made a hematoma with five to ten cubic centimeters of blood from a rabbit of the same strain in the back of some of our animals just before irradiation. Other animals were similarly prepared

with a hematoma of sheep cells; and some were x-rayed without any previous treatment.

We tested the serum at intervals of seven, nine, twelve and fourteen days with suitable amounts of complement and at no time did we find a hemolysin for rabbit erythrocytes.

SUMMARY

The authors report an experiment to see if the anemia and death of guinea pigs, cats and rabbits caused by x-ray irradiation might be due to an isohemolytic antibody in the blood serum of animals so treated. In albino rabbits which they used for the purpose no hemolysin was demonstrable.

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THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

APPENDICITIS DEATHS IN 705 NECROPSIES

F. P. McNAMARA, M.D., and
RICHARD V. MCKAY, B.S., Dubuque

In spite of great advances in surgical diagnosis and technic, appendicitis mortality rates remain high. According to Bower¹ the disease results in 18,000 deaths in this country each year. This mortality rate is 70 per cent higher than in Germany; 99 per cent higher than in New Zealand; 110 per cent higher than in England and Wales, and 313 per cent higher than in Italy. The statisticians of the Metropolitan Life Insurance Company² state that the appendicitis mortality rate in children remains at a level of ten per 100,000 population. As a result, it has risen from eleventh in their list of the causes of death at ages one to fourteen in 1911 to third in 1939. These facts stimulated us to analyze the cases of appendicitis in our series of 705 necropsies. In judging the results it should

be realized that the series represents less than 0.25 per cent of the cases in which appendectomy was done. Furthermore, they were collected over a period of eighteen years. However, the series indicates some deficiencies in the diagnosis and treatment of appendicitis as well as some of the more common complications and sequelae. It also emphasizes the necessity for continued education of both professional and lay groups concerning the seriousness of appendicitis.

NON-OPERATIVE CASES

In the series of 705 necropsies 30 cases of appendicitis were investigated; of them seven patients died without operation. Two of these were diabetic individuals threatened with coma, in whom the appendicitis was unsuspected; two were elderly patients with bronchopneumonia and a decompensated heart, respectively, in whom appendicitis was suspected but operation was considered inadvisable. One elderly patient was operated upon for chronic cholecystitis but the appendicitis which caused death was not diagnosed. Each of the last three patients had localized peritonitis and adynamic ileus. There were two children, four and six years of age, in this group. One case was diagnosed as "summer flu" by a physician who learned of the symptoms from the child's mother by telephone. When a second physician was called, the child was dead of gangrenous appendicitis with generalized peritonitis. The second child had been sick five days and was moribund when first seen by a doctor. This child also had gangrenous appendicitis with peritonitis.

OPERATIVE CASES

There were 23 cases in which operation was performed. The principal causes of death for the 23 patients who were operated upon were as follows:

Pulmonary Embolism and Infarction: Seven of the 23 patients who were operated upon died of multiple pulmonary infarcts or of massive pulmonary embolism. In only one case was the preceding venous thrombosis diagnosed clinically. The source of the emboli was the left femoral vein in five instances and the sigmoidal veins in one case. All of the patients in this group were over forty years of age and the average age was fifty-seven years.

Peritonitis: Generalized peritonitis secondary to acute appendicitis with or without evident perforation accounted for seven deaths. In four of them the peritonitis was localized at the time of operation but subsequently became generalized. In two instances the abdominal incisions were also

infected. Five of the seven patients gave histories of previous attacks of appendicitis.

Late Effects: There were nine cases in which the sequelae of previous appendectomies or other complications were the cause of death. In five of them postoperative adhesions caused intestinal obstruction, and generalized peritonitis followed attempts at surgical relief. In one instance the appendix was removed from an inflammatory mass and localized peritonitis and adynamic ileus caused death. Two elderly diabetic patients had chronic appendices removed and died of bronchopneumonia and adynamic ileus respectively. In the ninth case uremia developed after appendectomy and resulted from an undiagnosed hypertrophied prostate gland with pyonephritis.

DISCUSSION

In analyzing the above groups, it is obvious that in the non-operative cases the responsibility for the deaths was equally divided between the lay public and the medical profession. It would seem that the educational programs regarding appendicitis have failed to impress each group with the significance of abdominal pain. Certainly this is indicated when a diagnosis of "summer flu," whatever lesion is meant by that phrase, is made from symptoms given over the telephone. It is also indicated when parents wait until a child with abdominal pain is moribund before calling a physician. Until the lay public and professional men realize that any abdominal pain lasting more than two hours may mean acute appendicitis, we shall probably continue to have such needless loss of life.

In a previous paper³ the necessity of considering infectious processes, and especially appendicitis in diabetic patients who did not respond to therapy in the usual manner, was pointed out. There were four diabetic patients in the series of 30 cases and this fact emphasizes the danger of appendicitis in this type of patient. Some may ask why death was not ascribed to diabetes rather than to appendicitis. In two instances we classified the deaths as being primarily due to appendicitis because we believe the diabetes could have been controlled if the appendiceal condition had been diagnosed. The other two patients had chronic appendices and succumbed to postoperative bronchopneumonia and adynamic ileus. Each had been given adequate preoperative treatment and seemed in good physical condition. These cases emphasize the fact that in spite of clinical methods of judging the welfare of diabetic persons there are detrimental factors which we have no method of estimating. While they do not preclude

surgery, they do emphasize the added risk of operation in diabetic individuals.

The two cases in which operation was considered inadvisable bring up a very serious problem which must occasionally be faced by every physician; that is, whether or not to operate upon a patient with some serious complicating factor such as bronchopneumonia or cardiac decompensation. It would seem that having made the diagnosis of acute appendicitis the surgeon might be justified in deferring operation for a reasonable period in the hope that the inflammation might subside. However, if the clinical evidence indicates that this is not occurring, operation either under local or spinal anesthesia should be performed in spite of the extra risks involved.

In the operative cases, thrombophlebitis with subsequent pulmonary infarcts or massive pulmonary embolism and generalized peritonitis accounted for equal numbers of deaths. The importance of postoperative thrombosis and pulmonary emboli has been repeatedly emphasized, but they still remain as hazards especially in patients over thirty-five years of age. While there are many factors involved in the formation of the primary clot, stagnation of the blood due to bed confinement is recognized as one of the most important. It also indicates possible means of preventing some of the thrombi by the prevention of stagnation. In a recent article de Takats and Jesser⁴ described methods of accomplishing this by placing the patient in the Trendelenburg position for twenty-four to forty-eight hours after operation. They also attempted to overcome the muscular inactivity in selected patients by having them peddle on balanced bicycle wheels attached to the foot of the bed for five minutes three times a day starting on the third postoperative day. By this means they believed that thrombus formation and pulmonary complications were definitely reduced. They quote Gray who used similar methods at the Mayo Clinic as having reduced the morbidity rate of pulmonary complications by 30 per cent. Probably with the wider adoption of these simple methods thromboses of the veins of the lower extremities can be reduced. When thrombosis does occur, it is essential that it be diagnosed in order to prevent pulmonary complications. Too often the first evidence recognized is pulmonary infarction or sudden death from a massive pulmonary embolism. We believe this is because surgeons fail to be on the lookout for signs of the primary clot which occurs most often in the left leg. Pain in some part of the leg, dilatation of the veins of the leg, edema of the ankle and an irregular rise in the pulse and temperature are the cardinal signs. At

times they are so mild their significance may be missed unless careful study follows the complaint of the patient in regard to pain in the leg following operation.

The other major cause of death in this series was spreading peritonitis. This is true in all the series of appendicitis which we have investigated. Because the treatment of generalized peritonitis is unsatisfactory it is generally recognized that it is far more important to prevent it by early operation and before the peritonitis is more than a local process. Usually this means that the operation should be performed within twenty-four hours after the onset of symptoms. This is not always true because in virulent infections, peritonitis may be well developed within twenty-four hours. Another important factor is the habit many individuals have of taking laxatives for any abdominal pain. According to Haggard and Kirtley,⁵ of 481 patients who had taken laxatives, 477 died as a result of spreading peritonitis. Only by constant education of the lay public regarding the danger of laxatives in patients with abdominal pain can this unfortunate condition be overcome.

From a surgical standpoint the main problem is whether to operate immediately or to defer operation upon patients entering the hospital with evidences of spreading peritonitis. These patients usually have been sick three or more days, show considerable distention, have been vomiting, have generalized abdominal tenderness, a rapid pulse and a temperature of 101 degrees or more. Often they are dehydrated, in some shock, present evidence of acidosis and as a rule have a leukocytosis of about 20,000. It is admitted by all surgeons that the decision in such cases requires the highest type of surgical judgment and that no fixed rules can be blindly followed. However, the tendency in recent years has been to delay operation in this type of case and to substitute conservative treatment until the peritonitis subsides when the appendix is removed. However, this is not true in childhood when the omentum has not developed the ability to localize the infection. In younger patients Gatch and his co-workers⁶ advocate operation as soon as adequate preoperative treatment is completed. Space will not permit further discussion of the treatment of appendicitis with peritonitis, which is a controversial subject. However, it should be emphasized that every general surgeon should be familiar with the views of leading surgeons as reported in the literature.

CONCLUSION

Appendicitis continues to be a leading cause of death in spite of a means of cure if efficiently ap-

plied. This is largely because of late diagnosis and its associated complications. The medical profession must make every effort to reach earlier diagnoses and thereby reduce the number of complications, especially spreading peritonitis. To accomplish this desirable aim the education of the public as to the significance of abdominal pain, the dangers of delay and of laxatives, and the advantages of early operation in appendicitis must be continued and intensified.

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MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS AND COMMITTEES

Meeting of the Committee on Child Health and Protection

Sunday, August 25, 1940

The Committee on Child Health and Protection of the Iowa State Medical Society met in the central office Sunday, August 25, 1940, at eleven o'clock, with the following physicians present: H. E. Farnsworth of Storm Lake, Chairman; E. D. Plass of Iowa City, H. A. Weis of Davenport, G. E. Harrison of Mason City and Lee F. Hill of Des Moines. Also present were Doctors J. M. Hayek of the State Department of Health and Robert L. Parker, Secretary.

The intramural postgraduate course on pediatrics was discussed and each physician decided to write personal letters to some colleagues to tell them of the course. The same procedure was also suggested to publicize the obstetric course. Permission was given for physicians from outside the state to attend either course. The proposed plan of sending a consultant on obstetrics to county medical societies was discussed and approved for an experimental trial in Buena Vista County. Better health examinations for children were stressed, and the Speakers Bureau was asked to use the film "When Bobby Goes to School" as often as possible to demonstrate the correct procedure. Distribution of a book entitled "Maternal Care Complications" to Iowa physicians by the State Department of Health was approved; the smallpox vaccination program was considered; and the meeting adjourned at one-fifteen p. m.

Meeting of The Council

Sunday, September 8, 1940

The Council of the Iowa State Medical Society met at the Hotel Fort Des Moines in Des Moines, Sunday morning, September 8, 1940, at eleven o'clock. The following physicians were present: Councilors L. L. Carr of Clermont, C. H. Cretzmeier of Algona, F. P.

Winkler of Sibley (chairman), J. E. Reeder of Sioux City, E. F. Beeh of Fort Dodge, C. W. Ellyson of Waterloo, H. A. Householder of Winthrop, C. A. Boice of Washington, R. C. Gutch of Chariton, J. G. Macrae of Creston, and M. C. Hennessy of Council Bluffs; Legislative Committee, Fred Moore of Des Moines, R. D. Bernard of Clarion, L. A. Coffin of Farmington, F. P. McNamara of Dubuque, and R. L. Parker of Des Moines; Speakers Bureau, J. B. Priestley of Des Moines.

Minutes of the three previous meetings were approved, and Dr. Priestley was given the floor to explain a new radio broadcast being prepared by the Physicians' Optical Laboratories. Object of the program is to educate the public to the importance of having eye examinations made by a qualified eye physician. The optometrists protested part of the previous program, and Dr. Priestley explained that the new program was being prepared in a non-controversial manner. After hearing from the manager of the company, the Council discussed the matter and voted to leave the content matter of the broadcasts to the discretion of the Advisory Committee appointed by the Speakers Bureau to supervise the program. The program itself was also approved.

The appointments to the Tuberculosis, Executive Cancer, and Industrial Health Committees were approved; it was voted to hold district meetings during the fall to discuss medical preparedness, legislation, and other matters of importance which might arise; and Dr. Priestley's plan for making transcriptions of scientific talks by outstanding speakers for use in smaller county society meetings was approved. Meeting adjourned at 12:45 p. m.

INTERSTATE POSTGRADUATE MEDICAL ASSEMBLY

Members of the Iowa State Medical Society are urged to take advantage of the educational opportunities offered by the International Assembly of the Interstate Postgraduate Medical Association of North America, which will be held in the Public Auditorium, Cleveland, Ohio, October 14, 15, 16, 17 and 18, 1940. Taking part in the program will be many distinguished teachers and clinicians. The formal lectures and the clinics presented by these outstanding guests will prove worthwhile to all practitioners who can attend this meeting.

MEDICAL PREPAREDNESS

County Societies—Attention

Appoint your Committees on Medical Preparedness and send the names to

Dr. T. F. Suchomel,
415 Paramount Building,
Cedar Rapids, Iowa.

Please do this at once.

STATE DEPARTMENT OF HEALTH

Walter Diering

UNPRECEDENTED INCIDENCE OF POLIOMYELITIS

More cases of poliomyelitis have been notified to the State Department of Health in 1940 than in any previous year of record, with the exception of 1910. In 1910, reports for the entire year totaled 565; in 1940 (through Saturday, September 21), reported cases numbered 523.

Reports by Weeks in 1940

The following table (Table I) shows how many cases were reported to the State Department of Health for weeks ending Saturday, during the months of July, August and September (through the 21st), 1940.

TABLE I

Week ending	Number of cases
July 6	1
July 13	5
July 20	6
July 27	2
August 3	9
August 10	19
August 17	25
August 24	72
August 31	56
September 7	80
September 14	99
September 21	121

Considering that the disease is now passing through the high point of incidence and that additional cases may be expected to occur through the weeks of October, it is apparent that the total of reported cases in 1940 will be much in excess of that in 1910.

TABLE II

Age Group	Male	Female	Total No.	Total %
Under 1	2	0	2	1.2
1-4	26	9	35	20.5
5-9	30	26	56	32.7
10-14	33	10	43	25.1
15-19	12	9	21	12.3
20-29	6	3	9	5.3
30-39	1	2	3	1.7
40-49	1	0	1	0.6
Over 50	0	0	0	0.0
Not stated	1	0	1	0.6
Totals	112	59	171	100.0

Age and Sex of Patients

The accompanying table (Table II) gives the age and sex distribution of 171 patients as indicated on case reports completed through the courtesy of attending physicians and returned to the State Department of Health.

It will be observed that with the exception of the age group five to nine, male patients are considerably in excess of females. Males in a series of case reports number 112, or 65.5 per cent, and females 59, or 34.5 per cent. Nearly one-third of all the patients are in the age group five to nine, and 136 or 79.5 per cent are under fifteen years of age.

County Distribution of Reported Cases

The accompanying map indicates the distribution according to counties of poliomyelitis cases as reported during June, July, August and September (through Saturday, the 14th) of 1940. The upper figure of each county refers to reported cases while the lower figure represents the rate per 100,000 population for the period of approximately three and one-half months. Twelve counties, which during the period under consideration showed a case incidence of thirty or more per 100,000 population, are designated by heavy cross-hatch shading. With the exception of Adams, Decatur, Henry and Tama, the twelve counties reporting comparatively high prevalence in 1940 are those which showed a low incidence of the disease during the decadal period 1930 to 1939. (Compare with spot map in September number of the JOURNAL, page 450.)

LITERATURE ON AFTER-CARE

An attractive and useful bulletin dealing with after-care of the poliomyelitic patient has been prepared by T. J. Greteman, M.D., and Ruth B. Jackson, B.Sc., under the direction of Arthur Steindler, M.D., Iowa City, Professor and Head of the Department of Orthopedic Surgery, University of Iowa. Through the courtesy of Drs. Steindler and Greteman, sufficient copies have

been made available to the Iowa State Department of Health, to forward the bulletin to all physicians who have reported one or more cases during the current season.

ANNOUNCING PNEUMOCOCCUS STUDY COURSE

Through arrangement with M. E. Barnes, M.D., Director of the Department's State Hygienic Laboratory, announcement is made at this time of plans for a three-day pneumococcus study course to be held at Iowa City in November. The course is designed particularly for laboratory technologists associated with hospitals and other typing stations that cooperate with the Iowa State Department of Health in reporting positive findings of the pneumococcus.

It is likely that laboratory workers who have not previously attended the study course or who may have assumed duties in hospital laboratories during the past year, will want to register for the course. The State Department of Health, from funds allotted through the United States Public

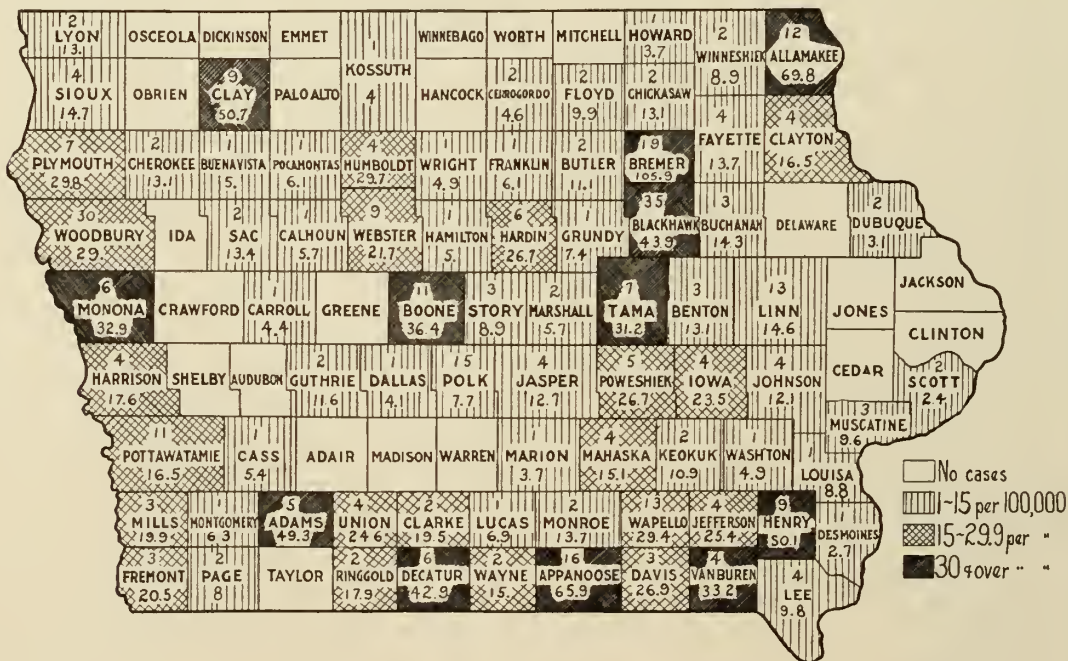
Health Service, will allow expenses for travel of those who attend.

Physicians desiring to attend the pneumococcus study course or to arrange for registration of a laboratory technician, are requested to write to the Iowa State Department of Health, Des Moines. Exact dates and further details of the study course will appear in the November number of the JOURNAL.

PREVALENCE OF DISEASE

Disease	Aug. '40	July '40	Aug. '39	Most Cases Reported From
Diphtheria	24	5	14	Polk, Hamilton
Scarlet Fever	56	56	44	For State
Typhoid Fever	16	10	38	For State
Smallpox	3	30	13	For State
Measles	70	305	80	Dubuque, Clarke
Whooping Cough	105	161	65	Dubuque, Polk
Brucellosis	26	30	19	For State
Chickenpox	10	43	13	For State
German Measles	1	7	1	Jones
Malaria	12	9	8	For State
Mumps	44	125	19	For State
Pneumonia	40	62	17	For State
Poliomyelitis	174	21	6	Black Hawk, Woodbury, Bremer, Polk, Wapello, Pottawattamie
Rocky Mountain Spotted Fever	12	4	5	For State
Tuberculosis, Pulmonary	2	28	61	For State
Gonorrhea	150	177	145	For State
Syphilis	204	256	269	For State

POLIOMYELITIS CASE REPORTS AND RATES PER 100,000 FOR JUNE, JULY, AUGUST, AND THROUGH SEPTEMBER 14, 1940



The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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IMMUNIZATION CAMPAIGN REPEATED

We have repeatedly referred to the smallpox situation in Iowa in these columns. In this issue we refer to it again; and we shall undoubtedly refer to it many times in the future, for it is an unnecessary situation, a disgraceful one, and should not be tolerated longer. It would not be tolerated under a totalitarian form of government, purely because it would be considered wasteful and uneconomic. However, we are not under a totalitarian form of government, and we have no desire to be, although certain problems may be more speedily solved by dictators. It is a fundamental belief of every American that solutions for undesirable situations can be found by a free people living in a democracy. The smallpox situation in Iowa is an undesirable situation, and we should find a solution.

Whose responsibility is it to rid the state of the disease? Is it the responsibility of the medical profession, the State Department of Health, or the people themselves? Certainly the medical profession has an obligation, and this obligation is and has been accepted, but the medical profession cannot compel people to be vaccinated. A simple, highly effective, harmless method of prevention has been devised. People have been told about it through the press, over the air, and by word of mouth, and yet we continue to have some 1,400 cases annually in a population of two and one-half millions, while five eastern states with a total population of some thirty millions have none. Last November the Iowa State Medical Society and the State Department of Health cooperated in a statewide vaccination campaign. Eighty-nine of our ninety-nine counties participated, and over 69,000 individuals were vaccinated. This year

the campaign is to be repeated, again in the month of November, and again every county medical society can be counted on to do its part in the campaign. Thus every effort has been put forth by organized medicine to make it easy for every person in Iowa to avail himself of protection against smallpox. Certainly it cannot be said that the medical profession has failed in its obligation.

Similarly the State Department of Health has for years carried on an energetic campaign against smallpox. It cooperated with the Iowa State Medical Society in last year's campaign and will cooperate again this year. It was responsible for press releases appearing in over 150 newspapers immediately preceding and during the campaign; it furnished the vaccine and bore the brunt of the promotional work essential to the successful execution of such a program. There can be no question but that the State Department of Health has functioned to the limit of its legitimate powers to remove the stigma associated with Iowa in respect to its smallpox record.

What of the people in the state? Does the responsibility rest with them for ridding our communities of this disease? We believe it does. They have two courses open to them. Either they can take seriously the wide publicity which has been given to the situation and voluntarily seek protection, or they can request their representatives in the legislature to enact suitable legislation for the compulsory control of the disease. All that is necessary is a simple statute, merely requiring evidence of a successful vaccination for admission to school. That such a statute would be effective is attested by the experiences of the five eastern states previously referred to. It is the people who become ill and die of smallpox; it is the people who pay the bills; and it is the people who have it in their power to end this threat to health, and even life, whenever they see fit. Organized medicine cannot do it, the State Department of Health cannot do it, but the people themselves can do it.

SULFATHIAZOLE, A NEW THERAPEUTIC AGENT

Since the introduction of sulfanilamide in the treatment of infections, there has been a great impetus to the study of other derivatives of this compound. The most recent contribution is sulfathiazole, which is the thiazole analogue of sulfapyridine. Sulfathiazole was synthesized by Fosbinder and Walter, and by Lott and Bergeim in 1939.

In contrast with sulfapyridine, the drug sulfa-

thiazole is more readily absorbed and is more rapidly excreted, and considerably less is conjugated. Likewise, sulfathiazole is much less toxic, causing vomiting in only about ten per cent of the cases, which is one of the disadvantages of sulfapyridine. However, recrystallization of the drug in the renal tubules may produce serious renal complications, although these are usually transitory. No particular effect upon the hemopoietic system has been noted. Dermatitis is a relatively common toxic effect, and peripheral neuritis has been reported.

Clinical application of this new chemotherapeutic agent indicates that it is most efficacious in the treatment of staphylococcus septicemia. Spink and Hansen¹ report the successful treatment of fifteen consecutive patients with staphylococcus septicemia with sulfathiazole. Spink and Paine² report considerable success with the use of sulfathiazole crystals in localized staphylococcus lesions, such as carbuncles and abscesses. Urinary tract infections due to staphylococci and to *Streptococcus faecalis*^{3 and 4} respond to sulfathiazole, whereas sulfapyridine and sulfanilamide fail to sterilize the urine. In the treatment of pneumonia, results with sulfathiazole are quite comparable to results with sulfapyridine. However, the effect is not as dramatic, although the toxic effects are less.

The recommended dosage of sulfathiazole for adults and older children consists of an initial dose of two to four grams, and one gram every four hours thereafter until the temperature has remained normal for forty-eight hours. The dosage is then gradually reduced and discontinued on the fifth to seventh day. For infants and children, .25 of a gram per kilogram of body weight is given in divided doses until the temperature is normal; then the dose is gradually decreased and the drug is discontinued on the fifth to seventh day. The sodium salt of sulfathiazole may be given intravenously in a five per cent solution of distilled water, an initial dose of three grams, and one gram every eight hours. To control the dosage requirements and to prevent serious toxic manifestations, daily estimations of free sulfathiazole should be made. Concentrations of from three to six milligrams per cent of the free form of the drug are considered adequate. Determinations of sulfathiazole in the spinal fluid indicate that very little of the drug enters the subarachnoid space; therefore, in cases of pneumococcus meningitis, sulfapyridine is the drug of choice.

From the available laboratory and clinical data it may be concluded that sulfathiazole is the most

effective therapeutic agent in the treatment of severe staphylococcal infections. In the treatment of pneumonia it is of about the same value as sulfapyridine, although somewhat less toxic than the latter drug. In certain types of urinary tract infections, it is more efficacious than either sulfanilamide or sulfapyridine.

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MEDICINE PREPARES

As in the nation at large, so in the medical profession, have all other issues become eclipsed by the one paramount issue of military preparedness. Conscription in peace time for the first time in the history of our country has become a fact. Some 400,000 men will, in the next few months, be mobilized in various camps throughout the United States for a year's intensive military training. Other thousands will follow later. Each volunteer and each draftee must undergo a critical physical examination before being inducted into military service. Throughout his year of training while he is in camp each man must be supplied with the highest quality of medical service available. To perform these tasks a large number of physicians, surgeons and other specialists will be required.

Uppermost in the minds of many doctors today are such questions as first, how are medical men to be selected for military duty; second, what of their practices and their incomes while they are away; and third, will conscription apply to doctors or will the quota be filled through the channels of the American Medical Association? Last week at Chicago, answers to these and many other questions were supplied when representatives from the Army, the Navy and the United States Public Health Service met with the Medical Preparedness Committee of the American Medical Association and committee chairmen from the various states. Because of the intense interest in this subject, the JOURNAL is happy to be able to present, in a special editorial, a detailed summary of the action taken at this meeting.

MEDICAL PREPAREDNESS—HOW IT IS TO WORK*

On September 20, 1940, a conference was held in Chicago at the American Medical Association headquarters on the subject of medical preparedness. Those attending the conference were the Committee on Medical Preparedness of the American Medical Association, state chairmen or representatives from every state in the union but one, representatives from the office of the Surgeon Generals of the Army and the Navy, and Surgeon General Parran of the United States Public Health Service. Colonel Spruit and Colonel Love of the Army, and Captain Dutton of the Navy, spoke to the group and answered the many questions which arose. From this conference, your state chairman on medical preparedness brings back to you the following information which, for the sake of convenience, will be divided into sections.

I. First Phase of Program

A. Local draft boards will be set up in each county, each with an examining physician attached. In more populous counties there will be more than one board. Ten counties in Iowa have two boards; two counties have three boards; and one county has seven.

B. Each draft board will have an examining physician.

1. *How is the examining physician chosen?* Each county medical society has been asked to recommend two physicians (for each draft board) who are over thirty-five years of age, citizens, and not a member of the National Guard or any reserve corps. These names are sent to the Iowa State Medical Society and submitted to the Governor through the office of the Adjutant General; the Governor selects one of the two for each board; the President of the United States then appoints the physician so chosen.

2. *What are the duties of the examining physician?* He shall examine all men who have been certified by the local draft board as eligible for service. The board will pass upon exemptions and deferments; the physician will have to examine only those men who are placed in Class 1. Complete instructions and standards for the examination will be supplied by the War Department.

3. *What are the responsibilities of the examining physician?* He will report his findings and make his recommendation to the local draft board. The draft board makes the final decision as to whether the man shall or shall not serve. The

responsibility for rejecting or accepting him does not rest with the examining physician.

4. *Will the examining physician have any assistance?* Yes, if he wishes, he may ask assistance from the Medical Advisory Board which will be set up in his district. (This board is explained more fully in the second phase of the program.) He may also ask the local draft board for additional physicians to help him if he thinks it necessary.

5. *How many men will have to be examined by the physician?* The present plan calling for 400,000 men means that each draft board will pass approximately ninety men. These will be seen over a period of about three months, so that the physician will have to examine between 20 and 30 men each month, according to present figures.

6. *What compensation will examining physician receive?* It was the feeling of those present at the Chicago meeting that the local draft boards and examining physicians should not be paid for their services but should make them their patriotic contribution to the government. The draftee who is called into service is the one who makes a real sacrifice. Those who are not called may wish to do their part at home, and this offers them an opportunity to do so. Only clerical help will be paid. Every effort will be made to keep the program from becoming a job-holding organization.

7. *What recognition will be given to the examining physician?* The Committee on Medical Preparedness will devise some sort of badge and certificate which will be given by the President of the United States to all physicians who serve their country in this manner.

II. Second Phase of Program

A. Board of Appeal. A Board of Appeal will be established in each county or district, to act upon appeals from the decision of the local draft board. It shall be composed of local non-medical civilians.

B. Medical Advisory Board. A medical advisory board has been suggested for each Council District in the state of Iowa.

1. *How are these Boards chosen?* Your State Committee on Medical Preparedness made recommendations concerning the personnel of these boards and submitted them to the Governor through the office of the Adjutant General. He will select one physician of each specialty and that physician will be appointed by the President.

2. *What is the composition of these Boards?* They consist of an internist, a surgeon, an oph-

*Prepared by the Medical Preparedness Committee.

thalmologist, a psychiatrist, a dentist, a chiroprapist, an orthopedist, and a radiologist.

3. *What are the duties of these Boards?* They will assist the examining physician whenever he calls upon them for help in making a recommendation; they will examine registrants upon request of the local draft board; and they will examine registrants upon request by the board of appeal. They are to aid the three groups named above whenever called upon to do so.

4. *What are their responsibilities?* They examine the registrant and report their findings and recommendations to whichever group has requested their assistance. They do not pass judgment nor make the decision as to whether the man shall or shall not serve.

5. *Will the members of these Boards be paid?* No, they too will serve without compensation, for the same reason as that given for the examining physician.

6. *What recognition will be given to these physicians?* They will be given a badge and certificate by the President of the United States for their contribution to the defense of the country.

The first and second phases of the program are local in character, and are performed by volunteer civilians and physicians. The third phase is under the control of the War Department and we cannot speak fully at the present time of what its procedures will be. After the draftee has been passed by the examining physician and the local draft board, he appears before the Army Induction Board. These boards will be decentralized so that the draftees will not have to travel as far from home as in the last war. There will be at least one in every state, and more in most states. The personnel of these boards will be military officers for the most part. They are not local boards, but are Army boards. Some physicians will be members of these boards. Present requirements are that they include three internists, one surgeon, one orthopedist, two ophthalmologists, one otolaryngologist, one neuropsychiatrist, one clinical pathologist, and one dentist. Medical Reserve officers will be used on these boards whenever possible, but it may be necessary to hire civilian specialists to help. Such civilian specialists will be paid for their time, and the American Medical Association, through its Committee on Medical Preparedness, has been asked to make recommendations as to a fair compensation.

What is the status of Reserve Officers? Medical Reserve officers are subject to call, just as are other reserve officers, and may be required to serve one year. Exemptions and deferments will be

granted individually, according to the circumstances. Such officers do not have to register October 16, however.

What is the status of physicians eligible for conscription because of age? All physicians who are within the age limitations of the draft who are not reserve officers or members of the National Guard, must register and will be subject to call. They may, however, apply now for a commission in the reserve corps, and the question of service will be determined by the War Department. It was recommended that all eligible physicians do this at once, since it would assure them higher rank and compensation, but not make service mandatory at once. If this is not done, the physicians' names will be subject to the general draft lottery. If he is drawn into service, he may apply for a commission and obtain it at that time, although this is not certain.

What is the status of internes, residents and students? Internes will be allowed to finish their year's work before being called into service. It was suggested that they be urged to apply for commissions in the reserve corps, so that they might complete their course of training. It is possible that residents may be exempted, but the feeling seemed to be that they could be spared from hospitals more easily than internes. Students will be allowed to finish their year of school and will not be called until July 1, 1941. Junior and senior medical students who are officers in the R. O. T. C. will not be conscripted. Sophomore students who become officers in the R. O. T. C. at the end of their sophomore year, or before July 1, 1941, will thus become exempt. Freshman medical students seem to be the only ones who may be affected by the draft.

What is the relation of the American Medical Association questionnaire to conscription? Since the conscription bill will affect all physicians under thirty-six years of age, we assume that the survey being made by the American Medical Association will be most useful in supplying information regarding physicians who are over thirty-five years of age. In all probability the War Department will call upon the Association for the names of specialists in different communities, and possibly for names of doctors who have signified their willingness to serve in some military capacity.

How can the practice of a physician doing military service be protected? The answer to this problem lies in the humanity and morality of his colleagues. No federal regulation can solve it. In the smaller communities, the doctors who remain at home may agree to care for his patients and turn the fees over to his family, and deliver

his patients to him on his return from service. This is being done in many small communities. In larger communities, the problem is more complicated. The five counties comprising Greater New York have set up a fund. When a doctor leaves for service, he notifies his county society that he is going. The other doctors then take care of his patients and turn the fees in to this fund. They are allowed a small percentage of the fee in some instances for their overhead, but it would not exceed five per cent. The money accumulated in the fund is paid to the physician or his family, as he may direct. This is a realistic approach to solution of the problem.

What is the function of the county medical society in medical preparedness? Every county medical society has been asked to appoint a Committee on Medical Preparedness. This committee could and should survey the medical resources of the county, and make a confidential report to the draft board as to which physicians cannot be spared from the community without endangering its health. It should also be responsible for protecting the practice of the physician who is called for service. An active committee can do much to safeguard the interests not only of the civilian population, but also of the doctor who is called into service, and the defense program as well.

BRITISH REFUGEE CHILDREN

Plans for admission of refugee children to this country from England are being pushed as rapidly as possible. American physicians will have two important functions to fulfill in connection with the project.

In the first place arrangements are being made for the evacuation of some 500 to 1,000 children of British doctors and it is desired to find homes for them with American colleagues. According to a communication from the American Postgraduate Medical Association from London, the British doctors wish to pay for the support of their children, but owing to the present Treasury regulations forbidding the export of capital, funds cannot be sent over directly. However, it is proposed that temporarily a sum of money (provisionally one hundred pounds per child) be paid into a trust fund which will be administered by an insurance company and ultimately disbursed to the doctors in this country in accordance with an equitable scheme to be agreed upon by the British Parents' Committee and the corresponding United

States committee with approval of the British Treasury.

The JOURNAL sees no occasion for addressing an emotional appeal to its readers on behalf of our British colleagues. Even the most imaginative among us can hardly conceive of the mental anguish our friends across the water must be experiencing. We are sure that American physicians will receive this appeal from abroad sympathetically and that all those who can will respond. If you are willing to accept into your home for the duration of hostilities one or more children of our British colleagues, please communicate with the Iowa State Medical Society, 505 Bankers Trust Building, Des Moines, Iowa. You will be informed of further necessary steps.

The second function American physicians will be called upon to fulfill in connection with the arrival in this country of British refugee children is providing them with medical care. The September issue of the *Journal of Pediatrics* indicates that this will in large part be undertaken by the American Academy of Pediatrics, working in conjunction with the United States Committee for the Care of European Children, 215 Fourth Avenue, New York, of which Mr. Marshall Field is president, and Mr. Eric Biddle is executive director. Providing immunity by all belligerents is granted, it is planned to send American "mercy" ships to England to bring the children to America. The medical personnel for a ship bringing 2,000 children will be three pediatricians and one surgeon.

The refugee children are referred to as "designated" (those coming to the homes of friends or relatives), and "undesignated," of whom 27,000 were listed as of August 1. All children will be thoroughly examined at the port of entry (New York at present) before being sent to various cities and towns for placement in homes. Further medical care of "designated" children will be the responsibility of the temporary foster parents. As a start, twenty cities have been selected in this country by the United States Committee where groups of "undesignated" children will be sent for placement. Volunteer committees of pediatricians and other necessary medical assistants will be set up in each of these cities to provide medical care for the children.

No definite knowledge is as yet available as to the number of refugee children which may be expected, but it is at least gratifying to know that the machinery for their medical care is organized and ready to function.

SPEAKERS BUREAU ACTIVITIES

POSTGRADUATE COURSE LECTURES FOR THE MONTH OF OCTOBER

Each month hereafter the Speakers Bureau will carry a schedule of its postgraduate lectures listed in chronological order which may be used as a calendar of coming events. It is our hope that the publication of the programs in this manner will provide an easily accessible index for the course. Complete details of the meetings may be found on the Speakers Bureau page of the September issue of the JOURNAL.

Ottumwa	October 1	Hand Infections, Michael L. Mason, Chicago
Panora	October 1	The Eye In General Practice, John M. Matheson, Des Moines
Sheldon	October 3	Common Obstetrical Abnormalities, Leon S. McGoogan, Omaha
Humboldt	October 3	Endocrinology, Edward H. Rynearson, Rochester
Corydon	October 8	Diseases of the Blood, Willis M. Fowler, Iowa City
Grinnell	October 8	The Making of a Cardiac Diagnosis, Daniel J. Glomset, Des Moines
Panora	October 8	Physical Diagnosis, Maurice G. Howard, Omaha
Marshalltown	October 8	Diseases of the Heart; Diagnosis and Treatment, Hugh B. McCulloch, St. Louis
Humboldt	October 10	Heart, Horace M. Korn, Iowa City
Sheldon	October 10	Allergy In General Practice, Charles K. Maytum, Rochester
Rockwell City	October 15	Orthopedics, Fred L. Knowles, Fort Dodge
Ottumwa	October 15	Possibilities in Reconstructive Surgery, James Barrett Brown, St. Louis
Grinnell	October 15	Physical Diagnosis of the Chest, Fred M. Smith, Iowa City
Panora	October 15	Fractures of the Wrist and Elbow, Lewis M. Overton, Des Moines
Sheldon	October 17	Diseases of the Heart, S. Marx White, Minneapolis
Humboldt	October 17	Gynecology in Office Practice, Irving F. Stein, Chicago
Albia	October 22	Infant Feeding, Fred Moore, Des Moines
Grinnell	October 22	Physical Diagnosis of the Abdomen, Frank R. Peterson, Iowa City
Panora	October 22	Diseases of the Gallbladder, R. Russell Best, Omaha
Ames	October 23	Differential Diagnosis and Treatment of Cataract and Glaucoma, C. S. O'Brien, Iowa City
Sheldon	October 24	Physical Diagnosis, William D. Paul, Iowa City
Humboldt	October 24	Urology in General Practice, Charles D. Creevy, Minneapolis
Ottumwa	October 29	Dermatology, Clinton W. Lane, Chicago
Panora	October 29	Common Diseases of Children, Jack V. Treynor, Council Bluffs
Grinnell	October 29	Physical Diagnosis of the Nervous System, Frank A. Ely, Des Moines
Sheldon	October 31	Diseases of the Eye in General Practice, John M. Matheson, Des Moines
Humboldt	October 31	Round Table Discussion on Prematurity, Addison W. Brown, Des Moines; Arnold M. Smythe, Des Moines

WOMAN'S AUXILIARY NEWS

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EXECUTIVE BOARD MEETING

The fall executive board meeting of the Woman's Auxiliary to the Iowa State Medical Society was held at the Fort Des Moines Hotel in Des Moines, Monday, September 16, 1940.

Mrs. V. E. Holcombe of Charleston, West Virginia, president of the Woman's Auxiliary to the American Medical Association, was the honored guest at a luncheon preceding the business meeting. Participating in this luncheon were the state officers, committee chairmen, presidents of county auxiliaries, and auxiliary members. Also present were Dr. James C. Hill of Newton and Dr. John G. de Bey of Orange City, members of the Advisory Council.

Following the luncheon, Mrs. E. T. Warren of Stuart, president of the Iowa Auxiliary, introduced Mrs. Holcombe, who addressed the group on the increasing influence and responsibility of women, and the opportunities for service for the doctor's wife. In this field of service, Mrs. Holcombe stressed influence of the wife and home upon the individual doctor; the maintenance of contacts between laymen's groups and the profession; the extension of influence toward projects of prenatal care, the summer roundup and adult physical check-ups; acquaintance with medical trends and legislation; civic responsibility as a voter and as a promoter of world peace; and social fellowship among the families of the profession.

Dr. Hill and Dr. de Bey each addressed the group, giving valuable suggestions regarding the rôle of a doctor's wife as an individual and the auxiliary as a unit in promoting medical interests.

In opening the business meeting, Mrs. Warren outlined the purposes and objectives of the auxiliary. Her remarks, along with the reports of the chairmen of the Program Committee, the Public Relations Committee and the Hygeia Committee will be found under separate items in this issue.

Some changes in the constitution were recommended by the Revisions Committee; namely, that the printing committee be dispensed with in line with a similar action taken by the National Board, and that the nominating committee be appointed at the fall board meeting, instead of the spring meeting. The organization committee is active in its attempts to organize auxiliary units in unorganized counties

throughout the state. A recent addition to the state organization is the Upper Des Moines Auxiliary, comprising the counties of Emmet, Dickinson, Clay and Palo Alto. The legislative committee is co-operating with the Iowa State Medical Society in all of its legislative activities. A new committee was appointed by Mrs. Warren to extend the use of the *Bulletin*, the official publication of the Woman's Auxiliary to the American Medical Association, among auxiliary members. The Press and Publicity Committee solicits the cooperation of all the units in the state in making the Auxiliary news a source of interest and information for all members.

At the close of the meeting Mrs. Holcombe made comments upon the various activities of the Auxiliary. Her presence and suggestions were appreciated by all who heard her.

A MESSAGE FROM OUR NATIONAL PRESIDENT

The year 1940 finds the Woman's Auxiliary to the American Medical Association entering upon the nineteenth year of its career with a membership of 24,000. The growth in membership of any organization over a period of years would be of no particular value to the cultural, artistic and educational development of a nation were it a matter of figures only. But the practical idealism and high purpose of this organization has placed the medical auxiliary in the front ranks of useful and usable organizations.

The Auxiliary was primarily organized as a social unit until mere social activities were eclipsed by the need of greater demands. As the years have passed our responsibilities have increased. We have come to realize the truth of the statement of Dr. Rock Sleyster, former president of the American Medical Association, who declared that "Being a doctor's wife is both an art and a career."

The natural instinct of a physician's wife is not unlike other women who generously serve the present age. The doctor's wife makes no attempt to practice medicine or discuss scientific medical topics. She does, however, attempt to acquaint herself with local health needs, to cooperate with state, county and city boards of health, to lend active assistance to all constructive health projects, national, state and local, to render assistance in selecting books on health and allied fields for local libraries, to obtain papers, charts and exhibits for schools, clubs, church and state fairs, to cooperate with Parent-Teacher Associations in their summer round-up programs and

other organizations with similar health projects, and to join with the press in keeping the community health-conscious.

This is the age of unified effort and we realize that it is only through concerted action that we may hope to accomplish our aims for a healthier and happier America. "Those who love America, who respect the rights guaranteed under our system of living and who desire to defend them are the workers wanted in American education."

Mrs. V. E. Holcombe

THE PURPOSE OF THE WOMAN'S AUXILIARY

The Woman's Auxiliary is not organized for the purpose of passing out medical knowledge, but it does desire to assist in the health program. The greatest need at the present moment is the development of a clear understanding of the aims and objectives of the Auxiliary. Our organization must have some definite objectives if it is to live, grow and function effectively. Some of them are briefly:

1. To assist the medical profession in the advancement of prevention of disease.
2. To aid in securing better medical legislation.
3. To do such work as shall be determined from time to time by the medical society.
4. To endeavor by frequent meetings to secure knowledge of and to disseminate the aims and educational program of organized medicine throughout the community.
5. To promote acquaintanceship among physicians' families in order that fellowship may increase.

Through constant study of our aims and problems, through cooperation, and through unselfish consideration of our work in relation to others, we can achieve success.

Why an Auxiliary? This question is asked many times, and since self education is one of the fundamental objects of our organization, we should be the first ones to be convinced of the worth and importance of the Auxiliary to the medical profession. For this reason some of the needs for such an organization are listed:

1. To counteract propaganda which is detrimental to the medical profession.
2. To help stop the exploitation of the medical profession; to see that corporations are not allowed to practice medicine; and to try to influence the public to discontinue asking for free service and information.
3. To study our program and to suggest programs for other clubs and organizations so that they may have the proper source of material.
4. To study the report of the Committee on the Cost of Medical Care.
5. To subscribe for the National Auxiliary *Bulletin*.
6. To tell our friends of the services of the Speakers Bureau.
7. To study *Hygeia* and use our influence in promoting its wider distribution.
8. To read the state journals and the *Journal* of the American Medical Association for news of what others are doing.
9. To urge the groups with which we are affiliated to acquire the habit of "tuning in" on the weekly health broadcasts sponsored by the Iowa State Medical Society.
10. To follow the information from the Legislative and Public Relations chairmen on the Auxiliary page in the *STATE JOURNAL*.
11. To advocate the annual health examination.
12. To strive for teamwork in the program of health education.

Mrs. E. T. Warren, President

COMMITTEES OF THE WOMAN'S AUXILIARY 1940-1941

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Dr. F. K. Burnett.....	Clarinda
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Mrs. F. W. Mulsow.....	Cedar Rapids
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HISTORIAN

Mrs. E. L. Bower.....	Guthrie Center
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BULLETIN

Mrs. T. B. Throckmorton.....	Des Moines
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SUGGESTED PROGRAM OUTLINE FOR 1940-1941

The Program Committee submits the accompanying program outline for 1940-1941, on the general subject of "Modern Trends in Medicine", in the hope that it may prove of value to some of our units. The aim of this study is self-education. We do not suggest this program with the idea that we shall prepare ourselves to inform the public along medical and health lines, but rather that, being well-informed, we may more intelligently cooperate with the Iowa State Medical Society and the Iowa State Department of Health in effecting their programs. The following study outline is arranged by months with a short bibliography for each topic prepared particularly for the lay reader. It is hoped that the subject matter is broad enough and the plan flexible enough to meet varied needs. If an auxiliary cannot follow the program throughout the year, it may select individual topics as the occasion arises.

October

Infantile Paralysis and Related Diseases

History: The work of Heine, Madin and Duchenne.

Modern Developments: The work of Alice Evans, Sarah Branham, George Retan, Muckenfuss, Laudsteiner, Poppin and Flexner; Modern Treatment of The Diseases.

Bibliography:

From the Iowa State Medical Library—
American Journal of the Diseases of Children,
November, 1936, page 1158.

Roche Review, April 17, 1940, page 1.

Hygeia, August, 1938, page 697.

American Journal of Public Health, June, 1938,
page 746.

From the Iowa State Traveling Library—
H. D. Ratcliff, Modern Miracle Men, 1939.

Magazine Articles—

Morris Fishbein, "The Crippling Disease, *Pictorial Review*, August, 1935, page 16.

LeRoy W. Hubbard, "Anterior Poliomyelitis and Its After Care," *The Journal of Health and Physical Education*, November, 1933, page 34.

W. Lloyd Aycock, "The Battle Against Infantile Paralysis, *Parents Magazine*, August, 1934, page 16.

November

Anesthesia

History: Before the nineteenth century. Use of anesthesia by Sir Humphrey Davy, Sir James Simpson, Crawford Long and W. T. G. Morton.

Modern Developments: Pravaz, the inventor of the hypodermic needle; Nieman, the discoverer of cocaine; Corning Bier and spinal anesthesia; contribution of Horace Wells, Serturmer and Luchhardt.

Bibliography:

From the Iowa State Medical Library—
H. W. Haggard, Devils, Drugs and Doctors.
Gordon, Sir James Young Simpson.
Harvey Graham, The Story of Surgery.

From the Iowa State Traveling Library—
Robinson, The Story of Medicine.
Martin Gumpert, Trail Blazers of Science.
Miller, Triumph Over Pain.

December

Tuberculosis and Pneumonia

History of Tuberculosis: Early history of the disease; contribution of Koch and Trudeau.

Modern Developments: Tests for the disease, Mantoux, Wolff and Florence Seibert; treatment of the disease; present status in the United States.

History of Pneumonia: Early history of the disease; Sternburg, Pasteur, Fraenkel and Weichselbaum.

Modern Developments: Serum, typing and sulfa-pyridine.

Bibliography:

From the Iowa State Medical Library—
W. R. Bett, A Short History of Some Common Diseases, 1934.

Joseph W. Bigger, Man Against Microbe, 1939.

Sir Robert W. Phillip, Collected Papers on Tuberculosis.

Hygeia, March, 1935, page 214; October, 1936,
page 887; June, 1939, page 509.

Medical Life, March, 1932.

Pathfinders in Medicine, page 713.

Robert Koch and Golden Anniversary of His Discovery, Medical Journal and Record, March, 1932, page 305.

From the Iowa State Traveling Library—

Chalmers, The Beloved Physician.

Paul DeKruif, The Fight for Life.

James A. Tobey, Riders of the Plagues.

January

Quackery in the United States

History: The use in prevention of diseases, diagnosis of diseases, foods and diets, and healing of diseases.

Modern Developments: The present crusade against quackery.

Bibliography:

From the Iowa State Medical Library—
W. W. Bauer, Health, Hygiene and Hooey, 1938.

Ruth De Forest Lamb, American Chamber of Horrors.

J. F. Montague, I Know Just the Thing for That.

Charles W. Warner, Quacks, 1934.

Morris Fishbein, Fads and Quackery in Healing, 1932.

From the Iowa State Traveling Library—

Morris Fishbein, Shattering Health.

David Riesman, Medicine in Modern Society.

H. W. Haggard, Devils, Drugs and Doctors.

February

Social Diseases

History: Research by Schaudin, Neisser, Ehrlich, Wassermann and Kahn.

Modern Developments: Present campaign against syphilis and gonorrhea; legislation, prevention and treatment.

Bibliography:

From the Iowa State Medical Library—

Charles Warren, *On Your Guard: The Prevention and Treatment of Sex Diseases*, 1937.

C. MacLaurin, *Postmortems of Mere Mortals*, 1935.

Franklin H. Church, *Manual of Social Diseases for the Layman*.

From the Iowa State Traveling Library—

Paul DeKruif, *The Fight for Life*.

Morris Fishbein, *Syphilis*.

United States Public Health Reports: Twenty Questions on Gonorrhea; and Behind the Syphilis Campaign.

March

Socialized Medicine

A suggested outline and materials will be prepared by Mrs. E. E. Shaw of Indianola. Let us remember that "No country has ever attained the standards of health for the individual and the community that exist today in America under the system of the private practice of medicine."

April

Cancer

History: History of the disease.

Modern Developments: Maude Sly, Loeb, Little, Hektoen, Spencer, Voegtlen. Control and Cure: The x-ray, William Roentgen; radium, Madame Curie. The present status and campaign against.

Bibliography:

From the Iowa State Medical Library—

Otto Glasser, Wilhelm Conrad Roentgen and the Early History of the Roentgen Rays.

Robey, *Health at Fifty* (illustrations).

Novak, Cause and Prevalence, *Hygeia*, September and October, 1939.

Marcasson, Cured Cancer Club, *Hygeia*, August, 1939.

Westchester Cancer Committee, Youth Looks at Cancer.

From the Iowa State Traveling Library—

Bernard Jaffee, *Outposts of Science*.

Logan Clendenning, *Behind the Doctor*.

David Riesman, *Medicine in Modern Society*.

Eve Curie, *Madame Curie*.

Maude Sly, Does she hold the key to cancer? Current History, September, 1938.

May

Child Welfare and Maternal Health

A suggested outline and materials will be prepared by Mrs. James E. Dyson of Des Moines. A pertinent thought on this subject is "A nation marches forward on the feet of its children."

June

Illusive Fevers

Tularemia: History, Dr. Edward Francis; source of infection, geographic distribution.

Undulant Fever: History, Howard, Henner, Davy and Meyer; geographical distribution; research findings of Hardy, Bierring, Hasseltine, Simpson, Cotton, Schroeder and Alice Evans.

Malaria: History, Laveran, Marchiafava and Celli; geographic distribution with attention to its occurrence in Iowa; research by Gorgas, Bass, Ross and Grassi.

Rocky Mountain Spotted Fever: History, Maxcy; geographic distribution; research by Wilson, Wolbach, Chowning and Spencer.

Typhoid Fever: History, Louis and Gerhard; research by Bartlett and Read.

Bibliography:

From the Iowa State Medical Library—

Walter M. Simpson, *Tularemia*, 1929.

American Journal of Nursing, January, 1934.

From the Iowa State Traveling Library—
James A. Tobey, *Riders of the Plagues*.

H. D. Ratcliff, *Modern Miracle Men*.

Paul DeKruif, *Microbe Hunters*.

Iowa State Department of Health publications.

In addition to the above outlines and bibliographies, the Committee wishes to call attention to other sources of material. All auxiliaries should be placed on the mailing list of the State Department of Health to receive its weekly bulletins. They should borrow the Loan Collections from the American Medical Association, and use the fine materials on the above topics appearing in current issues of *Hygeia*. Any auxiliary wishing to continue the study of mental hygiene may write to Mrs. Henry G. Decker, 2908 Woodland Avenue, Des Moines, for outlines and material. Each month a book review will be prepared by Mrs. Keith M. Chapler of Dexter, and a Do You Know column will be edited by Mrs. E. E. Shaw

of Indianola. The Program Committee further recommends that each auxiliary interest itself in the campaigns for immunization, prevention of syphilis and the control of cancer; that each consider the importance of mental hygiene, child welfare and maternal health; and that each group follow the work that is being done on the subject of socialized medicine. The Committee hopes that the auxiliaries may find this program a source of education and inspiration.

Mrs. A. G. Felter, Chairman
Program Committee

PUBLIC RELATIONS PROGRAM FOR 1940-1941

The theme for the year is "Prepare Yourself", and the Committee has developed the following outline for assistance in accomplishing this task:

1. Search for and study the meaning of the term "public relations".
2. Study the national Public Relations Program.
3. Objectives offered for consideration are:
 - a. To acquaint the public with the means of acquiring authentic health information.
 - b. To present the attitude and aims of the medical profession on national health issues.
 - c. To familiarize every auxiliary member with the American Medical Association platform.
4. Sponsor a health essay contest.
5. Promote the immunization program.
6. Cooperate with the Speakers Bureau.
7. Popularize radio health broadcasts sponsored by the American Medical Association and the Iowa State Medical Society.
8. Cooperate with Parent-Teacher Associations in Summer Round-ups.
9. Place *Hygeia* in every possible home and school.
10. Lend assistance in selection of books on health subjects for schools and libraries.
11. Actively participate in other clubs and serve as health chairmen whenever possible.
12. Express disapproval to makers of films or radio programs that are destructive to the patient's confidence in his doctor.

It is suggested that each county auxiliary make each member responsible for a specific part of the public relations plan. For example, appoint one member to arrange health meetings, one to work specifically with charity organizations, one to cooperate with state, city and county boards of health, one to be active in cancer control, one to contact the parent-teacher association, one to work with the board of education, and one to supervise health talks in social clubs. All members must keep in close contact with their local medical societies.

Mrs. W. A. Seidler, Chairman
Public Relations Committee

PLAN FOR COUNTY HYGEIA CHAIRMEN

The first object of the Auxiliary is "through its members, to extend the aims of the medical profession to all organizations which look to the advancement of health and education."

We consider it an honor and privilege that we have been given this opportunity to help in the promotion of the distribution of *Hygeia*, the only magazine with authentic health information published in this country. Auxiliary members should become familiar with this periodical and realize the importance of its use in every school and home in their vicinity. In order to assist county chairmen in the performance of their duties, the following objectives are proposed:

1. To place *Hygeia* in schools, public libraries, hospitals, rest rooms, beauty parlors and institutions of all kinds. *Hygeia* should be on the tables in physicians' and dentists' reception rooms. During waiting periods there is an opportunity for *Hygeia* to warn the laity against quacks and faddists.
2. To promote *Hygeia* health exhibits at county fairs by installing health booths. All material is available on loan from the American Medical Association, and is prepared for use where exhibits concerned with health education are shown.
3. To have one meeting a year designated as "*Hygeia* Day."
4. To try earnestly to inspire doctors' wives to read *Hygeia*, to study our problems and accept health chairmanships in social clubs and organizations.
5. To secure the doctors' subscriptions so that the Auxiliary may receive credit.
6. To give subscriptions as gifts.
7. To support our motto—"Every member a subscriber or responsible for a subscription", thus working in closer cooperation for the good of the medical profession.
8. To put your county on the Honor Roll and thus help place the State Auxiliary on the Honor Roll.
9. To cooperate one hundred per cent with each other and the state organization.

Mrs. H. F. Clark, Chairman
Hygeia Committee

Speakers Bureau Radio Schedule

WSUI—Tuesdays at 1:30 p. m.

WOI—Wednesdays at 2:15 p. m.

- Oct. 1- 2 Tonsillitis, Byron M. Merkel, M.D.
- Oct. 8- 9 X-ray and Health, Allan B. Phillips, M.D.
- Oct. 15-16 The Common Cold, Dan S. Egbert, M.D.
- Oct. 22-23 Facts on High and Low Blood Pressure, Clare A. Trueblood, M.D.
- Oct. 29-30 The Treatment of Open Wounds, George H. Scanlon, M.D.

DO YOU KNOW

That the poliomyelitis season is here again and that from July to October this disease must be considered in the diagnosis of any acute illness, especially in children?

That up to August 17, 95 cases had been reported to the Iowa State Department of Health, but by September 12 the number had increased to 388?

That prostration and painful rigidity of the back are the two most important early symptoms of poliomyelitis?

That even in communities where there is an active poliomyelitis epidemic the risk of any child developing the disease is not much greater than 1 in 1000 since poliomyelitis is a disease with a low level of communicability and occurrence of a second case from a known first case is infrequent?

That recent research has opened the possibility that infection may result by virus contact through the intestinal tract and the skin?

That at present no proved prophylactic measure is available? Nose sprays with various solutions have been tried and found ineffective and the injection of convalescent serum into exposed children is of questionable value.

That for the country as a whole, during the first thirty-five weeks of 1939 there were 3,018 reported cases, and during the same period in 1940 there have been 3,286 cases, or an increase of 268 cases?

That the National Foundation for Infantile Paralysis has awarded \$12,900 to the laboratories of the State Department of Health at Lansing, Michigan, to establish a virus research laboratory?

That last year, in Iowa, there were 197 cases of poliomyelitis, with thirty deaths, twelve being in the age group of five to fourteen years. During the same period of time there were 1,827 deaths from automobile accidents, 122 of which occurred in the age group of five to fourteen years.

That last year, in Iowa, pneumonia accounted for

the deaths of 258 children under fourteen years of age, and that pneumonia which has a mortality rate eight times that of poliomyelitis, excites far less newspaper publicity and parental concern?

BOOK NOTES

Among recent book titles of interest to the profession and the laity is Hans Zinsser's autobiography, *As I Remember Him*. The author will be remembered not only for his scientific work in Serbia, Russia, Mexico and the Orient where he studied plagues, but also as the author of *Rats, Lice, and History*. The son of German political refugees, Dr. Zinsser attended schools in America and Europe. *As I Remember Him* is told as the life story of the author's friend, "R. S.", and is patterned after *The Education of Henry Adams*. Dr. Zinsser's career, the record of his thoughts and attitudes toward living make especially fascinating reading.

Test Tubes and Dragon Scales by Dr. G. C. Basil and Elizabeth F. Lewis is the account of a doctor's efforts to convert the changeless Chinese to modern medical technic. In Changking, 1,500 miles inland, Dr. Basil found ancient customs and psychology as difficult to comprehend as his patients found him and his methods.

The latest "doctor" novel which is recommended for its readability, plot and characterization is *The Fire and The Wood* by the young Englishman, R. C. Hutchinson. It is a timely story of a German doctor who seeks a new cure for tuberculosis; he is willing to use an orphan servant girl as his guinea pig until he suddenly discovers he loves her. *The Fire and The Wood* is a happy combination of idealism, sacrifice and science.

Mrs. Keith M. Chapler

Subscribe to the *Bulletin*, the official publication of the Woman's Auxiliary to the American Medical Association; issued quarterly, \$1.00 a year. Send subscriptions to Mrs. H. E. Christenberry, Highland Drive, Knoxville, Tennessee, or to the State *Bulletin* Chairman, Mrs. T. B. Throckmorton, 919 Forty-fifth Street, Des Moines, Iowa.

To County Auxiliary Presidents:

Have you appointed a chairman of press and publicity?

Is she sending news of your activities to the state chairman of press and publicity?

We want to know about your programs, your projects, and your social events.

The Auxiliary News means news from auxiliaries.

We appreciate your cooperation.

SOCIETY PROCEEDINGS

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held at the Fortner Hotel in Waverly, Monday, September 23. After the six-thirty dinner Raymond J. Jackman, M.D., of the section of proctology, The Mayo Clinic, Rochester, spoke to the group on Anorectal Diseases; Diagnosis and Treatment.

P. K. Graening, M.D., Secretary

Calhoun County

Herbert W. Rathe, M.D., of Waverly, was guest speaker for the Calhoun County Medical Society at a meeting held in Rockwell City, Tuesday, August 20. Dr. Rathe spoke on Physical Diagnosis.

Cerro Gordo County

The regular monthly meeting of the Cerro Gordo County Medical Society was held Tuesday, September 24, at the Hotel Hanford in Mason City, with Hugh R. Butt, M.D., of The Mayo Clinic, Rochester, as the speaker of the evening. He addressed the group on Recent Advances in Vitamin Therapy.

Fayette County

Members of the Fayette County Medical Society convened for dinner and a scientific program Wednesday, August 28, at the Rex Hotel in West Union. L. L. Carr, M.D., of Clermont, councilor for the first district, spoke on Management of Obstetrics.

Greene County

The regular meeting of the Greene County Medical Society was held at the Greene County Hospital, Thursday, September 12. A. G. Fleischman, M.D., of Des Moines gave a talk on Clinical Aspects of Calculus Disease with Reference to the Kidney and Ureter. He illustrated his address with lantern slides. Another guest of the society was Earl D. McClean, M.D., also of Des Moines, who is a member of the State Society Committee on Medical Preparedness. He spoke briefly on the problems involved in completing the survey of the state.

John R. Black, M.D., Secretary

Jasper County

A. G. Fleischman, M.D., of Des Moines, was guest speaker for the Jasper County Medical Society, when

that organization reconvened for its first meeting Tuesday, September 3, after the summer recess. Dr. Fleischman's subject was The Stone Problem as Applied to the Kidney and Ureter. The meeting was held at the Skiff Memorial Hospital in Newton.

E. F. Besser, M.D., Secretary

Jefferson County

Clinical case reports were presented as the scientific program when the Jefferson County Medical Society met in Fairfield Monday, September 9. Reports were given by four Fairfield physicians: Drs. J. S. Gaumer, G. K. Dunkel, I. N. Crow and Harry Frey.

Keokuk County

The Keokuk County Medical Society met in Sigourney, Tuesday, August 27, for a dinner and program. Otto Neurath, M.D., of Sigourney furnished the scientific paper for the evening, speaking on Coronary Diseases.

Madison County

On Monday, September 16, the Madison County Medical Society met for a six-thirty dinner at the Winterset Hospital. Wendell M. Willett, M.D., of Des Moines, gave a talk on Common Skin Diseases and Their Treatment.

Evelyn M. Olson, M.D., Secretary

Marion County

The regular quarterly meeting of the Marion County Medical Society was held at the Masonic Hall in Bussey, Thursday, September 19. After the six-thirty dinner, the following program was presented: Acute Poliomyelitis, Thomas M. Barrett, M.D., of Knoxville; discussion opened by Frank J. Condon, M.D., of Centerville; Tuberculosis, John Russell, M.D., of Des Moines; and Medical Preparedness, Robert L. Parker, M.D., of Des Moines.

J. R. Wright, M.D., Secretary

Polk County

The first fall meeting of the Des Moines Academy of Medicine and Polk County Medical Society was held at Younkers Tea Room, Wednesday, September 18. James T. Priestley, M.D., assistant professor of surgery, The Mayo Foundation, Rochester, opened the meeting at six o'clock, speaking on The Acute

Abdomen. After the seven o'clock dinner, Clifford J. Barborka, M.D., assistant professor of medicine, Northwestern University Medical School, Chicago, addressed the group on Food in the Practice of Medicine.

The next meeting of the Society will be held at the Broadlawns Tuberculosis Department, Wednesday, October 16, with a courtesy dinner at six-thirty, and the following program: Carcinoma of the Cervix, Addison W. Brown, M.D., of Des Moines; and The Drip Method in Treatment of Syphilis, Lindsay J. Ervin, M.D., of Des Moines.

Scott County

J. Carl Painter, M.D., superintendent and medical director of Sunny Crest Sanatorium, Dubuque, was guest speaker for the Scott County Medical Society at the first meeting after the summer recess, held at the Lend-A-Hand Club in Davenport Tuesday, September 3.

P. E. Gibson, M.D., Secretary

Wayne County

Elmer A. Larsen, M.D., of Centerville, spoke for members of the Wayne County Medical Society, at a meeting held in the office of Dr. A. E. Davis in Seymour, Tuesday, August 13. Dr. Larsen discussed The Function Treatment of Sterility.

PERSONAL MENTION

Dr. Kendrick A. Smith, who was graduated in 1937 from the University of Chicago, The School of Medicine, has entered practice in Waterloo where he will be associated with Drs. William H. Bickley and Fred M. Marquis. Dr. Smith completed his internship at the Billings Hospital in Chicago, and for the past three years has been a fellow in medicine at the Mayo Clinic in Rochester. He will limit his practice to internal medicine.

Dr. Edwin A. Nash, formerly of Dike, has moved to Ottumwa and opened offices in that city. Dr. Henry W. Clasen, after ten years' practice in Denison, has located in Dike.

Dr. Robert C. Locher of Cedar Rapids spoke on "Communicable Diseases" at the meeting of the Linn County Nursing Service, held Friday, August 23, in St. Patrick's auditorium in Fairfax.

Dr. John J. Prusmack has been named acting superintendent of the Clarinda State Hospital, following the death of Dr. Roscoe D. Smith. Dr. Prusmack was graduated in 1936 from the University of Louisville, School of Medicine, and has been connected with the hospital staff since July 1, 1939.

Dr. John I. Marker of Davenport spoke for the regular meeting of the Burlington Kiwanis Club, held Thursday, September 12, at the Hotel Burlington. Dr. Marker's subject was "The Public and the Future of Medicine."

Dr. Alfred J. Bryant, formerly of Montour and more recently of Liberty Center, has located in Garden Grove, where he will continue in the practice of medicine.

Dr. Royal E. Brisbine of Mason City has announced his retirement from active practice after twenty-seven years of service in that vicinity. He has disposed of his practice to Dr. Robert H. Harris, who comes to Mason City from Prairie du Sac, Wisconsin. Dr. Harris was graduated in 1935 from Rush Medical College, University of Chicago.

Dr. Daniel J. Glomset of Des Moines was the guest speaker for the Albia Rotary Club, Monday, August 19. His subject was "Heart Problems of the Business Man."

MARRIAGES

Miss Ida Lieber of Spearfish, South Dakota, and Dr. Loren E. Collins of Estherville, were married Tuesday, August 27, in the St. Joseph Catholic Church in Spearfish, South Dakota. After a wedding trip through the Black Hills, the young couple returned to Estherville, where Dr. Collins has been practicing for the past two years.

The marriage of Miss Jean Burke of Omaha, and Dr. C. Joseph Kurth of Council Bluffs, took place Saturday, September 14, at Our Lady's Chapel of St. Cecilia's Cathedral in Omaha. Dr. Kurth was graduated in 1935 from Creighton University School of Medicine, Omaha, and the couple will live in Council Bluffs, where Dr. Kurth has recently become associated with Dr. J. P. Cogley in the practice of medicine.

DEATH NOTICES

Smith, Roscoe Daniel, of Clarinda, aged fifty-nine, died August 23 of heart disease. He was graduated in 1909 from Drake University College of Medicine, Des Moines, and at the time of his death was a member of the Page County Medical Society.

Stech, Joseph Lawrence, of Council Bluffs, aged forty-four, died September 13, of heart disease. He was graduated in 1921 from Creighton University School of Medicine, Omaha, and at the time of his death was a member of the Pottawattamie County Medical Society.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

LIQUOR, THE SERVANT OF MAN—By Walton Hall Smith and Ferdinand C. Helwig, M.D. Little, Brown and Company, Boston, 1940. Price, \$2.00.

THE FOOT AND ANKLE—By Philip Lewin, M.D., associate professor of bone and joint surgery, Northwestern University Medical School. Lea and Febiger, Philadelphia, 1940. Price, \$9.00.

PRINCIPLES OF HEMATOLOGY—By Russell L. Haden, M.D., The Cleveland Clinic. Second edition, thoroughly revised. Lea and Febiger, Philadelphia, 1940. Price, \$4.50.

ARTHRITIS AND ALLIED CONDITIONS—By Bernard I. Comroe, M.D., instructor in medicine, University of Pennsylvania. Lea and Febiger, Philadelphia, 1940. Price, \$8.50.

TWELVE AGAINST ALCOHOL—By Herbert Ludwig Nossen, M.D., New York. Harrison-Hilton Books, 420 Madison Avenue, New York, 1940. Price, \$2.50.

MODERN DERMATOLOGY AND SYPHILOLOGY—By S. William Becker, M.D., associate professor of dermatology and syphilology; and Maximilian E. Obermayer, M.D., assistant professor of dermatology and syphilology, University of Chicago. J. B. Lippincott Company, Philadelphia, 1940. Price, \$12.00.

GETTING READY TO BE A MOTHER—By Carolyn Conant van Blarcom. Fourth edition. The Macmillan Company, New York, 1940. Price, \$2.50.

OBSTETRICS AND GYNECOLOGY—Edited by Fred L. Adair, professor of obstetrics and gynecology, University of Chicago. Two volume illustrated set. Lea and Febiger, Philadelphia, 1940. Price, \$20.00.

MANAGEMENT OF THE CARDIAC PATIENT—By William G. Leaman, Jr., M.D., assistant professor of medicine, Woman's Medical College of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940. Price, \$6.50.

THE INJURED BACK AND ITS TREATMENT—Edited by John D. Ellis, M.D., Chicago. Charles C. Thomas, Springfield, 1940. Price, \$5.50.

PHYSICAL DIAGNOSIS—By Ralph H. Major, M.D., professor of medicine, University of Kansas. Second edition, revised. W. B. Saunders Company, Philadelphia, 1940. Price, \$5.00.

THE NEW INTERNATIONAL CLINICS, Volume III, New Series Three—Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940.

PHYSICAL DIAGNOSIS—By William Nance Anderson, M.D., associate clinical professor of medicine, University of Southern California, School of Medicine, Los Angeles. Lea and Febiger, Philadelphia, 1940. Price, \$4.75.

MEDICAL NURSING—By Edgar Hull, M.D., clinical professor of medicine, Louisiana State University School of Medicine, New Orleans. F. A. Davis Company, Philadelphia, 1940. Price, \$3.50.

BOOK REVIEWS

THE 1939 YEAR BOOK OF GENERAL THERAPEUTICS

Edited by Bernard Fantus, M.D., professor of therapeutics, University of Illinois, College of Medicine. The Year Book Publishers, Chicago, 1940. Price, \$2.50.

The busy practitioner, harrassed by ever increasing demands on his time, will find this year book an excellent investment. Its 532 pages are filled with abstracts of the cream of the 1939 international literature on therapy, supplemented by pertinent comments by the editor. Where desirable, technic is fully presented, in some cases accompanied by illustrations.

The material is well organized and is presented under the following headings: therapeutic technic, anti-pathogen therapy, restoratives, tissue alterants, function modifiers, toxicology, and non-pharmaceutical therapeutics (physiotherapy primarily).

From the voluminous literature on sulfanilamide, neoprontosil and sulfapyridine, eighty-four articles have been abstracted, presenting the mode of action, indications, toxic reactions, and contraindications. The use of oxygen in high percentages and helium therapy is represented. New methods in blood transfusions and the uses of preserved blood are shown. The chapters on vitamins and hormones serve to simplify some of the confusion growing from the wealth of claims and counter-claims of therapeutic efficiency. Recent advances in the therapy of burns are reviewed. Newer methods of anesthesia are well discussed. Considerable space has been devoted to physiotherapy in its many fields.

The difficulty, as well as the necessity, of keeping

up with the rapid advances in therapeutics is well known to all. As a substantial aid to this effort the book is especially recommended.

A. L. J.

CLINICAL ROENTGENOLOGY OF THE ALIMENTARY TRACT

By Jacob Buckstein, M.D., visiting roentgenologist, Bellevue Hospital, New York. W. B. Saunders Company, Philadelphia, 1940. Price, \$10.00.

Dr. Buckstein has written a very valuable and interesting clinical textbook adhering rigidly to the title. He presents the results of his vast experience covering a period of twenty years in which he has been doing roentgenology of the alimentary tract at Bellevue Hospital, New York City, plus the cases from his private practice. All of the physiologic and pathologic conditions of the alimentary tract are fully illustrated mainly as to roentgenograms, although the surgical and autopsy findings are also included.

The aim of the book is best summarized by a sentence from the preface in which Dr. Buckstein states: "In writing this book I have tried to keep in mind the point of view of the specialist in this field, be he roentgenologist or gastro-enterologist, and also the needs of the internist and the surgeon; I have tried particularly to keep in mind the needs of the physician in general private practice as I have discerned those needs through years of teaching the subject."

This book will be of special benefit to the general practitioner as well as the specialist. References

to the literature on gastro-enterology, physiology, surgery, etc., are numerous. This book is highly recommended.

A. B. P.

SHOCK—BLOOD STUDIES AS A GUIDE TO THERAPY

By John Scudder, M.D., College of Physicians and Surgeons, Columbia University, New York. J. B. Lippincott Company, Philadelphia, 1940. Price, \$5.50.

Shock produces a complex clinical picture, of which, until recently, little was known. Modern knowledge of the concentrations of ions in the body fluids and the blood has solved many of the problems relative to this syndrome. The author has concisely presented this volume to evaluate the causes and therapy of the various manifestations of shock.

The text is conveniently divided into four sections. Section one deals with the historical and experimental knowledge of shock, including blood changes, potassium, physical measures of hemoconcentration, and experimental shock. The second part presents the varieties of shock with an analysis and discussion of treatment. The author deals with the various types of therapy with the etiologic factor in shock. Section three is confined to historical development and bibliography. The volume concludes with an eight page symposium of laboratory data which affords a ready method of determining the degree of shock.

This text is replete with case illustrations and the results obtained with the therapy instituted. It sets forth a complete approach to a modern clinical entity.

J. W. C.

THE NEW INTERNATIONAL CLINICS

Volume II, New Series Three. Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940.

This number of the New Clinics maintains the high caliber of preceding volumes. It contains nine valuable original contributions from authoritative sources on such subjects as fungous infections, Vincent's disease, empyema, jaundice, Vitamin K, pellagra, etc. The clinics are presented by members of the faculty of Rush Medical College and include the surgical treatment of carcinoma by Gilchrist, the treatment of intractable pain by Verbrugghen, echinococcus diseases of the liver, and several contributions on genito-urinary subjects, pernicious anemia, etc.

One-third of the volume is devoted to an excellent review of the hypothalamus. The first part is devoted to the anatomy of the hypothalamus, its centers and tracts. The second part considers the functions and clinical syndrome of the hypothalamus.

This is a thorough and scholarly contribution which correlates the present concepts of the function and the clinical syndromes which result from lesions around the third ventricle.

D. K.

ENDOCRINE THERAPY IN GENERAL PRACTICE

By Elmer L. Sevringhaus, M.D., professor of medicine, University of Wisconsin. The Year Book Publishers, Chicago, 1940. Price, \$3.50.

This is a modern, up-to-date symposium of what is known of the manifestations of endocrine disturbances. The author presents the chapters in such a way that they can be read easily and with understanding. Exhaustive detail has been purposely omitted.

The opening chapters deal with the biologic significance of the hormones and their systematic differentiation. Chapter three discusses the posterior pituitary. The major portion of the text includes a discussion of the anterior pituitary group to describe the growth factor, thyroid, parathyroids, mammary glands, pancreas, diabetes mellitus, adrenals, ovaries, testes, and endocrinopathies in children and adolescents, the latter chapter being a new addition to this revised text. The closing chapter is devoted to the problem of obesity.

The clarity of hormonal disposition and the timely therapeutic suggestions make this text valuable to the practitioner who realizes the growing importance of endocrinopathies.

J. W. C.

A TEXTBOOK OF PHYSIOLOGY

By William H. Howell, M.D., emeritus professor of physiology, Johns Hopkins University. Fourteenth edition, thoroughly revised. W. B. Saunders Company, Philadelphia, 1940. Price, \$7.50.

A textbook of physiology which has reached its fourteenth edition obviously must contain what the teacher, the medical student and the doctor needs, since physiology, the study of the body during life whether it be chemical, physical or mechanical, is the basic groundwork of medicine. Dr. Howell in his latest edition clearly and in an easily readable manner describes physiology. In the preface the author begins by stating he would keep in mind two principles; first, simplicity; and second, a judicious limitation of the material selected. Many problems in physiology are as yet not settled and he presents the literature as it exists and allows the reader to pass judgment.

While the text is used by medical students it should be in the library of all physicians, because progress in this modern age can only be made as a result of a thorough understanding of this base of medicine.

E. B. W.

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TROUBLE SHOOTING*

MARVIN F. JONES, M.D., New York, N. Y.

The interpretation of common symptoms occurring in uncommon combinations furnishes a spice to modern medicine. Some of these symptoms are headache, dizziness, impaired hearing, hoarseness, impaired vision, loss of smell or taste, difficulty in swallowing and persistent cough. Perhaps some of the experiences mentioned will seem to be the figments of a most imaginative writer's mind rather than the actual occurrences of everyday life; and, again, perhaps the reader will think "it can't happen in my practice." If you will recall some of the experiences in your own practice you will undoubtedly remember patients who remained in the undiagnosed or "I wonder what was wrong" file. The symptoms of these patients furnish the theme for this paper.

HEADACHE

Probably the most common complaint with which the sick assail the doctor is headache. A headache is most important to the patient but, in most instances, very uninteresting to the doctor. An unfortunate day may come when the doctor is especially weary and the patients are especially annoying. On this day common headache as the symptom of a serious disease may be underestimated or even ignored.

Ocular Headache. Perhaps a simple uncorrected astigmatism, muscular imbalance or mild inflammation is the cause of the headache. Nervous headache from eye strain is likely to be the tag placed on symptoms by the patient. One type of headache due to the eyes is aching along the sternocleidomastoid muscle and in the occipital region of the head. A pronounced ocular muscle imbalance may cause a diplopia, or it may be of a lesser degree, causing difficult compensation. The head is unconsciously turned to adjust the dis-

turbance and an habitual tilt or twist occurs. The symptoms may easily be relieved by orthoptic exercise, correction of refractive error and the proper use of prisms. A deep ocular headache is of importance. So many serious diseases are accompanied by deep ocular pain. Petrositis, retrobulbar neuritis, intracranial pressure from any cause, ophthalmitis, sinusitis and edema are a few notable ones. Headache or pain referable to the deep ocular region necessitates a quick, thorough and effective search for the source. It may be found either in the eye itself or in the contiguous structures. Sometimes, however, the cause is most dangerous and remote. Early discovery of the cause may not only save vision in one or both eyes but even life.

Sinusitis. The headaches caused by sinusitis may vary from the mildest to the most extreme in character. Very little information can be gained from the severity of the pain. The acute fulminating sinusitis is likely to be accompanied by the most severe pain but this pain is no worse than the pain accompanying an acute allergic sinusitis. The most dangerous type of chronic sinusitis may exist without local pain. Headaches of the toxic variety give little indication that the main factor is the paranasal sinus. The classic headache due to a frontal sinusitis comes over the frontal region. It is most severe during the morning and wears away as the day advances. Frontal pain can, and frequently does, accompany maxillary sinusitis. Ethmoids and the sphenoid sinuses more frequently cause deep-seated headaches with the occipital type predominating. Pain, aching or a full feeling between the eyes, is frequently caused by involvement of the anterior ethmoid cells or occasionally the frontal sinuses. The maxillary sinus may cause disturbing headaches which are accompanied by nausea and vomiting.

In this modern age it is not unusual for the patient to say "I have sinusitis." Upon inquiry regarding the symptoms, the answer finally resolves itself into a complaint of headache. The easy

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course is to proceed with a routine treatment for headache. This patient of all patients is entitled to a thorough examination. The general practitioner frequently sees these patients and a word regarding the popular attitude might not be amiss. Admitting that the radicalism of a passing generation did not furnish the best results for the sinus patient, the fact still remains that "sinus surgery still holds an important place in the practice of medicine." The difficulty was not with the technic, when employed by competent surgeons, but rather with lax methods used to select proper patients for operation and the indiscriminate operating by inferior technicians. More thorough knowledge of the pathology of sinusitis, more searching investigation of predisposing and causative factors, plus intelligent selection of operations when surgery is necessary, will dispel the impression "once a sinus, always a sinus."

The pendulum swinging between radicalism and conservatism has swung far to the conservative side. Most nose and throat surgeons have been balked in their decision to perform essential surgical measures by the patient's statement "my doctor told me never to allow any one to perform an operation on my sinuses." The patient sometimes retains such a casual semi-humorous statement to the point of endangering their chances for good health. When a patient's confidence in his doctor is lost it is time to find a new doctor. Likewise, when a doctor loses confidence in the opinion of his specialist colleague, it is time to find another specialist. A large part of the prejudice against radical sinus surgery has been due to the deforming technics or poor cosmetic results. Modern sinus surgery has reduced deformity to a minimum and plastic surgery will go a long way toward improving the remainder.

There is probably no type of headache which so closely resembles the headache of an intra-cranial lesion as the severe sinus headache. A true migraine is about the only type which competes on the basis of severity. This statement should not be interpreted to mean that all patients with sinusitis have severe headache. Many patients will state that they know they do not have sinusitis because they have no pain. Nor must this statement be interpreted as meaning that all sinuses causing pain must have surgical relief. As a matter of fact, the more severe headaches are associated with acute sinusitis, and most surgeons prefer avoiding operations on patients with acute sinusitis. The main thought in this paragraph is the necessity of always remembering that a serious situation may be present when the complaint is a severe or protracted headache.

Headache Associated With Ear Diseases. The most common complaint of a patient having acute or chronic petrositis is headache. This statement sounds dogmatic but, in our experience, it is true. In acute types, pain is more likely to be in or around the eye, while chronic petrositis is more frequently accompanied by severe hemicrania. I did exploratory operations on three patients complaining of unbearable hemicrania. There was a history of former ear disease but there was no discharge from the ear at the time of operation. The petrous pyramid was drained and permanent relief was obtained. Pain in and around the ear is present with mastoid infection but a deep-seated pain, which becomes worse at night, is likely to mean an extension from the mastoid area. The extension may involve the dura or brain in either a diffuse or localized process.

Intracranial Headaches. Brain abscess comes quickly to our mind and may be as quickly dismissed. It is an old and much feared complication which is amenable only to surgery. Meningitis is a different story. It seems incredible that a few short months ago, or possibly years, meningitis was considered hopeless. The usual expression when speaking of meningitis was "he developed meningitis and died." Our recent experiences with chemotherapy alone or combined with surgery have been so revolutionary that they will bear repetition. The bacteriologic examination in a series of over five hundred consecutive mastoidectomies showed the common infecting organism to be *Streptococcus haemolyticus*. It is conservative to assume the presence of this organism in eighty per cent of acute otitis. We believe many acute ears are cured by the use of sulfanilamide when it is used before the acute process has caused bone destruction. Later, the drug may cause the usual clinical picture to be distorted. Symptoms may disappear while the disease is progressing. Even the radiograph is misleading. Many, if not all the symptoms and signs we have been accustomed to use as indicators, are gone. One thing is sure; when complications occur concurrently with masked symptoms, it makes decision on a safe course to pursue extremely difficult. Experience may change my mind tomorrow but I believe now that the exploration of the mastoid in a doubtful case is the wise procedure. Good judgment still directs the elimination of any pus or diseased bone in the mastoid area by operation. This dictum applies not only at a time when mastoidectomy may be considered as a precautionary measure against a possible meningitis, but it also applies as the right course to pursue when mastoidectomy is

combined with chemotherapy in treating an existing meningitis.

The headaches accompanying all intracranial involvement are rather characteristic. They are severe, deep-seated and seem more pronounced at night. They may be referred to the occiput, vertex, temporal region or frontal area. They are more likely to be continuous with some periods of diminution of severity in contrast to periods of complete relief experienced in migraine headaches. Headaches probably lead the list of common symptoms which may be either innocuous or of a most serious implication. We all miss the bull's eye at times and my most recent humilifier was a series of incidents occurring in the treatment of one patient. Headache and dizziness were the principal complaints. Various methods had been used to cure these symptoms. The latest was a radical mastoid operation performed by myself on the ear homolateral to the usual location of the headache. This ear had discharged for many years and a cholesteatoma was found at operation. The headaches, sad to relate, continued unabated. The sinuses had not been overlooked by other surgeons or by the staff in our own hospital, but the importance of rather moderately diseased sinuses had been underestimated. One surgeon advised a bilateral Calwell-Luc operation on the antra. His enthusiasm for performing these operations was known to me but I agreed that the sinuses, especially the maxillaries, should be cleared of their diseased contents. Many of the consulting surgeons had labeled this patient as a "psychopath." It is true that his personality was the cause of much irritation on the part of his doctors. The operation produced unexpected results. His headaches and dizziness ceased. His personality was improved. If there is a moral to this little narrative it must be to make a thorough job of eliminating known pathology in the head when aches and pains of the head are the patient's chief complaints.

DIZZINESS

Most of us doctors do not realize how often the symptom of dizziness occurs in our practice. Some of the time it is noted mentally or in our brief histories and almost immediately disregarded. This is not true, of course, when the dizziness is severe enough to incapacitate a person. Patients frequently receive a tag which is incorrectly labeled Ménière's disease, and, after various flutterings hither and yon, wind up by having their eighth nerve cut. Dizziness, like the old terms rheumatism, neurasthenia or the more recent labels avitaminosis and hypertension, is being reassembled on the basis of its known component parts.

This jig-saw puzzle is far from complete, but each little added piece of information makes the whole much more understandable.

In the first place we should agree on the meaning of dizziness. I will use the word in the sense of a disturbed sense of relationship between a person and surrounding objects or a lack of ability to realize their position in space. This definition obviously includes vertigo which I consider one of the types of dizziness. A light-headed feeling, an uncertainty of walk, falling sensation, giddiness, floating on air; all these and more are statements of patients included in this group.

The concepts of the causes of dizziness are still in the controversial stage. This fact does not stop our using methods intended to cure a patient when a cure is possible. Dogmatic statements such as, "all dizziness is caused by the end organ of the vestibular apparatus," "dizziness can only be the result of a disturbance of the vestibular nuclei in the floor of the fourth ventricle," "the cerebellum is the final arbiter of stability," must be discarded. Probably all these statements, combined with others, will be parts of a reconstructed conception of the mechanism of dizziness.

We are particularly concerned with a correct estimate of dizziness as a symptom. An alcoholic drink will cause dizziness but the situation would not be considered dangerous. The same type of dizziness can be the result of intracranial pressure. Again, the theme of this article is stressed. The common symptom of dizziness may indicate an innocuous or most serious condition. Some patients may be relieved of dizziness and some are incurable. A thorough search for the cause of dizziness is the least we may do for these patients. The following causes of dizziness may be increased by adding the experience of others. Perhaps a few of the following causes are essentially the same. They are named here in order to indicate a classification which might be developed.

Ménière's Disease. This generally misunderstood name is properly applied to hemorrhage in the labyrinth. Such hemorrhages are found, but they are rare. The Ménière symptom complex may be present in other conditions involving the vestibular mechanism or central pathways. The attack is characterized by a sudden onset of severe dizziness, a sudden and profound loss in hearing, tinnitus, and loss of equilibratory sense which causes the patient to lie prostrate on the ground. Nausea and vomiting may be present. Ménière's disease is not curable. Equilibration may be reestablished but the loss in hearing remains permanent. Ménière's syndrome may be treated by the Furstenberg method as follows:

- "1. Forced protein.
2. Calories as indicated.
3. Low salt content.
4. Ammonium chlorid 3.0 gms., with each meal (six capsules, each containing $7\frac{1}{2}$ grains taken during the meal.) Three days on and two days off.
5. Water intake unrestricted. (Not excessive liquids.)

6. Diet, approximate neutral, low sodium.

Group A. The following foods may be taken daily:

1. Eggs, meats, fish and fowl as desired.
2. Bread as desired.
3. Cereal, one of the following: farina, oatmeal, rice, puffed rice or puffed wheat.
4. Potato and one or more servings of any of the following: macaroni, spaghetti, rice, corn, cranberries, prunes, plums.
5. Milk as desired.

6. Vegetables and fruits daily of any fruit and any vegetable not included in Groups B and C, as desired.

7. Butter, cream, honey, jellies, jams, sugar, and candy permitted as desired.

Group B. The following foods to be avoided: All salt meats and fish; bread, cracker and butter prepared with salt; carrots, clams, condensed milk, raisins, caviar, cow peas, olives, spinach, cheese, endive and oysters.

Group C. The following foods to be taken no more than twice weekly: Lima beans, beets, butter milk, cantaloupe, cauliflower, celery, char, dried coconut, dried currants, dates, figs, horseradish, kohlrabi, limes, muskmelon, peanuts, peaches, mustard, pumpkin, radishes, rutabaga, strawberries, turnips, turnip tops and water cress.

All foods to be prepared and served without salt."

Ménière's syndrome is also treated by selective section of the eighth nerve as advocated by Dandy.

Closure of Eustachian Tube. One of the most common causes of dizziness is impaired equalization of atmospheric pressure in the middle ear caused by a closure of the eustachian tube. This dizziness is quickly and easily cured by inflation, according to the method of Dench.

Multiple Sclerosis. In this disease we find the lateral pulsion symptom. The patient literally hurls himself to the ground. The pathology is claimed to be a sclerotic plague in the nervous mechanism of the equilibratory apparatus.

Changes in Blood Pressure. These changes are gradual and may be accompanied by giddy sensations or slight uncertainty in stability. Any change in the blood pressure may cause a corresponding change in dizziness.

Diseases of the Endocrine Glands. This subject would furnish ample material for several papers but the only objective here is to establish another cause of dizziness. Perhaps the most commonly recognized causes would be disorders of the thyroid and suprarenal glands.

Arterial Sclerosis. This, to me, is the common cause in persons passing beyond the "middle age" period. A lack of vascular adjustment forces periodic changes in activities, subordinating all activities to a poor vascular adaptability. We can see these changes in the fundus of the eye and it seems reasonable to believe similar changes take place in the ear.

Chemical Changes in the Blood. Much of this topic must remain theoretical although there are some facts which seem to prove the theory of osmotic changes through the membranous labyrinth between the perilymphatic and endolymphatic fluids. Sodium and potassium have each in their turn caused an onset of dizziness and in the reverse order produced a cessation of dizzy attacks. A salt-free diet will cure some cases of dizziness. The same salt-free diet will cause an onset of dizziness in others. These changes seem to be the result of a disturbed fluid balance in the ear.

Foci of Infection. One of the most notable examples to prove that a focus of infection can cause dizziness is the patient with maxillary sinusitis described earlier in this paper. The patient was cured of an incapacitating dizziness by operation. Other foci, such as the apical abscesses of the teeth and diseased tonsils, are credited as being the cause of dizziness.

The Allergic Causes. No one would hazard a guess on how these causes may be interrelated with fluid imbalance, the endocrine system, the sympathetic nervous system and particularly the vasomotor system. My first experience with allergy as a cause of dizziness was the occurrence in milk sensitive patients.¹ A thorough knowledge of allergy plus the ability to treat intelligently the allergic diseases will produce most satisfactory results in curing the patient who complains of allergic dizziness.

Cranial Tumors. Intracranial tumors which cause dizziness are more frequently located in the posterior cranial fossa. As would be expected those tumors arising from or involving the eighth nerve lead all others as a cause of dizziness. Other tumors which involve the area of the vestibular nuclei in the floor of the fourth ventricle or those tumors which cause an internal hydrocephalus by interfering with the flow of ventricular fluid cause dizziness. Dizziness may be caused by any pathology of the cranial contents when intracranial

pressure is altered; and, again, please recall the broad definition for dizziness.

Chemical and Pressure Changes in the Cerebrospinal Fluid. Chemical and pressure changes in the cerebrospinal fluid have both caused and relieved attacks of dizziness. The mere withdrawal of spinal fluid may be accompanied by dizziness. This phenomenon is rather to be expected since there is a direct connection between the perilymph and the subarachnoid fluid through the aqueductus cochleae. The flow of fluid is from the subarachnoid space through the aqueduct and into the labyrinth.

Vascular Insults Involving the Vestibular Nuclei. "Vascular Insult" appealed to me as a particularly apt and descriptive combination of words. I first heard them used by a neurologist friend to describe accidents occurring in the prolific blood supply located around the bulb. Adopting his use of the phrase to mean any vascular change which would disturb the normal tissue and fluid relationship, we may include the vasodilation and constriction mechanism. Edema and dehydration would also be included. Aneurysm of the vessel walls as well as local degenerations leading to thrombosis could also be cloaked under this most inclusive phrase. Locations where vascular accidents might cause dizziness are many. The cure will depend upon the cause.

Ocular Dizziness. The type with which many people are familiar is that which occurs when one gazes down from a precipitous elevation. An ocular nystagmus also disturbs normal relations between individuals and their surroundings. A diplopia can cause dizzy sensations. Some serious conditions, of which petrositis is an example, and many innocuous conditions such as muscular imbalance can cause dizziness from double vision.

Psychic Dizziness. The usual complaint of a neurotic person is dizziness. The functional disorders exhibited by patients who are potential beneficiaries from insurance payable as the result of a real or imagined injury are manifested by dizziness. The fact that dizziness is the principal complaint of many emotionally unstable individuals must not obscure the important and serious conditions which are sometimes found in those patients we are prone to label "neurotics." Chapters might be written on this subject, but again this paper can only hope to stimulate further study along the lines to which attention is lightly directed.

Sudden Changes in Atmospheric Pressure. The more common experiences of modern times include the aeroplane as a cause of dizziness. No matter whether the patient is subjected to a sudden decrease in atmospheric pressure obtained by the

quick ascent in an aeroplane or an increase in pressure caused by a dive in a submarine, the end result may be an attack of dizziness. These attacks are caused by an uncompensated change in the atmospheric pressure exerted on the tympanic membranes. The eustachian tube is the compensatory apparatus. When this tube fails to open, the sudden changes in pressure may cause serious damage to the structure of the ear. The usual symptoms are stuffy sensation, giddiness and, later, severe pain. Otologists have used a method of treating the eustachian tube which involves the principle of opening the eustachian tube by means of forcing air under pressure through the tube. Occasionally the slight increase in air pressure used in this treatment will also cause dizziness. When the process of swallowing fails to equalize the pressure, some artificial method of opening the tube may be employed. One air line is experimenting with a simple method of equalizing middle ear pressure. The apparatus consists of a rubber nose piece which is attached to a soft rubber bag. The patient inflates the bag by blowing it up with his nose. When the pressure inside the bag is sufficient, the eustachian tubes should open. The danger in using this apparatus is the possibility of blowing infected material into the middle ear through the eustachian tube. This danger is greatly increased for those having acute rhinitis or sinusitis.

Hypersensitive End Organs in the Vestibular Apparatus. The terminology is poor but it is adequate to describe a dizziness due to vibrations. A classic example is cited by Page. His patient was a workman who had a disabling vertigo brought on by any shrill whistle. A noise sufficiently loud or piercing in character will cause dizziness in many people. Gun fire will affect people with unprotected ears the same way. Patients who are especially susceptible to those vibrations which do not disturb the average individual are assumed to be hypersensitive. A correction of the general hyperexcitability may have a beneficial effect on the vestibular apparatus.

Dizziness Due to Trauma. Perhaps everyone has suffered from dizziness after an accident. This type of injury may vary from an encounter with a door in the dark to a healthy punch on the chin from a belligerent citizen. The obvious cause is a jar to the vestibular apparatus. Boxers, who have become "punch drunk," are known to have petechial hemorrhages in the brain. Logically, the same pathology should be found in the delicate membranous structure of the ear. Patients who have sustained industrial injuries frequently complain of dizziness which lasts over a long period

of time. Strangely enough, some will notice the onset several weeks or months after the injury. The decision on whether the patient is malingering or not is most difficult. Dizziness, headache and pain in the back form a triad of symptoms which would pay off in gold, if any one could furnish proof of their existence or non-existence.

Brain Abscess. While temporal or frontal abscesses are occasionally accompanied by dizziness, abscesses of the cerebellum quite commonly are accompanied by disturbances in equilibrium. The equilibrium may be disordered as the result of degeneration, inflammation or pressure associated with the abscess formation.

Spinal Cord Lesions. Lesions involving the various spinal cord tracts and, especially the vestibulospinal or cerebellospinal tracts, cause loss of balance. The muscle, joint and tendon pathways for sensation, when diseased, cause a break in the reflex arc which controls kinetic adjustments.

Brain Stem and Nuclear Lesions. The various degenerative diseases may affect both pathways and nuclei whose function is the maintenance of equilibrium. Examples are the medulla oblongata syndrome of Babinski-Nageotte and Cestan-Chenais; the pons varolii syndrome of Faville, Millard, Gübler and Raymond Cestan; the mid-brain syndrome, oculomotor of the central grey matter of the mid-brain, of the interpeduncular space, the tegmental syndrome of Benedict and the cerebral peduncle syndrome of Weber.

Pathologic Processes in the Terminal Sensory Organ or Along the Course of the Vestibular Division of the Eighth Nerve. The most striking involvement is a tumor. The symptoms are caused both by the resultant intracranial pressure or by direct extension. Disturbances in equilibrium are almost always demonstrable. A combination of labyrinthine symptoms and symptoms caused by involvement of the posterior fossa structures combined, makes a nice problem in localization.

The Autonomic Nervous System and Its Relation to Dizziness. The autonomic nervous system controls the vasomotor action of those blood vessels supplying the ear. Attacks of dizziness have been stopped by paralyzing the stellate ganglion or by stripping and resection of the pericarotid plexus from the carotid artery. This seems to furnish adequate evidence of some direct association between the symptom of dizziness and disturbed function of the autonomic system. The pallor, perspiration, change in surface temperature and dizziness also seem to be the result of autonomic "shock."

Inflammatory Reaction in and Around the Labyrinth. The old expression of perilyabyrinth-

itis takes on a fresh importance since our ability to examine temporal bones under the microscope has been perfected. We now know the pathology of labyrinthine involvements which cause dizziness. These involvements are always serious but with the aid of our new knowledge the potential causes may be corrected before the more grave aspects have developed. The technic for drainage of pus located anywhere in the temporal bone has been improved. Cures as the result of this technic replace former deaths.

Fistula of the Labyrinth. A fistula is more easily recognized than other types of labyrinthine pathology. The Gelle test, quite successfully, makes our diagnosis for us. The Gelle test depends upon negative or positive pressure to cause a labyrinthine response. Nystagmus is the result of a positive test.

Alcohol and Tobacco. I hate to include these causes of dizziness but they are too obvious to omit. We all recall the effects of our first smoke. Perhaps some of us have had the experience of imbibing too well but not wisely. Dizziness and instability are experiences which, for us initiates, need no elaboration. To all others we will simply state the fact, "it does happen." Habitual over-indulgence is not to be treated lightly. Prolonged over-indulgence will cause dizzy attacks which are most difficult to arrest. The changes in nerve structure caused by tobacco and alcohol seem to be permanent results of abuse. One cigarette or one alcoholic drink may start either a mild or most severe attack. Your patient has to choose between the "cure" and the disease. The cure is total abstinence.

Cerumen. Last but not least in this list of the causes of dizziness comes our old friend "wax in the ear." Patients may be immediately relieved of dizziness, deafness, otalgia, persistent cough, spasmodic sneezing or "noises" by removing wax. The process may be very simple or most complicated. Irrigation with warm boric solution in a Pomeroy syringe is most effective in removing any substance from the external auditory canal. One exception should be definitely remembered. Do not remove any foreign body such as a bean, which will swell when moistened, by irrigation. Another caution, "use no hooks." Lacerated canals and ear drums and dislocated ossicles have been the result of unskilled instrumental removal of foreign bodies from the ear canal. Impaired hearing has been recorded.

IMPAIRED HEARING

Patients complain of deafness so often that serious implications of the symptom may be overlooked. A sudden loss of hearing demands an im-

mediate and thorough search for the cause. Diagnoses of brain lesions could often be made early enough for a successful operation if a proper estimation had been placed on the symptom of deafness. One grievance which the otolaryngologists have in common with the ophthalmologists is the sale of hearing aids and glasses by unqualified agents. These poorly trained high pressure salesmen are unable to recognize the importance of symptoms which caused people to consult them. What can be done to cure or prevent deafness? (I will not enter the controversy over fistulization of the semi-circular canals at this time.) The adult person having impaired hearing caused by "chronic catarrh," otosclerosis or a nerve lesion has only a slight chance of again experiencing normal hearing. The potential cases occurring in early youth are the ones deserving most attention. Following a personal talk with Drs. Crowe and Guild, I drew the following conclusions regarding their work on the prevention of deafness.

1. All children under fourteen years of age should be examined to determine which ones are likely to have impaired hearing.

2. An audiometer having a higher range than those in common use is needed to discover loss in the high range which is present in a large percentage of these patients.

3. A nasopharyngoscopic examination is necessary to discover the existence of lymphoid tissue around the eustachian tube. Lymphoid hypertrophy is present in all patients who may benefit by the treatment prescribed.

4. Radium emanation directed toward the lymphoid tissue around the nasal orifice of the eustachian tube has improved hearing in a larger number of selected patients than any other method.

With this knowledge, the need for thorough ear, nose and throat examinations plus audiometer tests on all children of school age, becomes evident. Within the past few years many specialists have improved hearing by curing sinusitis. The removal of tonsils seems to have little effect. The deafened patient is elated when a cure is the result of some very simple method such as the removal of wax.

Deafness, as a symptom, may be due to some simple cause. It may be the result of an incurable impairment of function. Deafness may be the symptom which leads the careful physician to diagnose a serious intracranial disease.

Tinnitus. Such a simple complaint as ringing in the ears may be annoying and yet benign, or tinnitus may be the clue which leads to a diagnosis of intracranial disorders. Ringing caused by closure of the eustachian tube or a disordered gastro-intes-

tinal tract is transient and easily cured. Tinnitus caused by drugs, of which quinine is the common example, ceases when the drug is stopped. A pulsating roar, bruit or throbbing may respond to systemic treatment directed toward equalizing the blood pressure. The tinnitus with a sudden onset, the severe tinnitus or tinnitus associated with the deafness of otosclerosis, are types which do not respond readily to treatment. There is one sound lesson to learn; that is, never give a prognosis to a patient who asks if tinnitus can be cured. Always be on guard for the more serious implications.

HOARSENESS

Perhaps the elder Jackson was the first to stress the importance of prolonged hoarseness. This symptom still stands at the head of the list as the most common and at the same time most significant indicator of serious trouble. Shouting at a ball game, singing in a barber shop quartet or a "cold" constitute the usual causes. Hysterical aphonia may simulate paralysis so closely we must be constantly on the alert. The statement, "patients who have complained of hoarseness over three weeks' duration must be thoroughly examined," cannot be repeated too often. These patients require repeated examinations. Chronic sinusitis is a frequent cause of hoarseness and it is also a cause which is easily overlooked. Sinusitis may take its proper place some day as a cause of hoarseness, cough and other chest symptoms. Certainly today the incidence of sinusitis in its quiescent form is greatly underestimated. Benign growths on the cords are particularly prone to cause hoarseness in singers and public speakers. These growths can be treated palliatively or by surgery. Both methods accomplish excellent results. Rest is the best therapy for minor ailments of the vocal cord. An effective illustrative argument for the rest treatment is to compare the vocal cord with a sore toe. One would never question the advice "do not walk with your sore toe." Neither should the advice "do not use your sore vocal cord" be disregarded. Silence or vocal rest means the elimination of any sound caused by motion of the vocal cords. Paralysis of one or both vocal cords is an immediate challenge to our diagnostic ability. An adductor paralysis, bilateral or unilateral, is important because the paralysis may be the result of a central lesion. An abductor paralysis causes a serious local problem because the airway may become closed. In addition to the local danger, there is also the lesion of the central nervous system to keep in mind. Fortunately, two effective operations for the correction of abductor

paralysis have been devised during the past two years.

GENERAL DISCUSSION

Sinus Thrombosis and Sulfanilamide. Sometimes our gas masks drop from the alert position and we doze with a sense of false security. One of the most striking examples is the apparent well being of a patient having a sigmoid sinus thrombosis. The uninformed or the less vigilant doctor may allow a patient to "slip by" because of two things; one is the elimination of fever caused by sulfanilamide, and the second is a patient who appears "too well" following a known serious illness. The worry caused by these patients kill more doctors in civil life than do bullets during a war.

Malignancies of the Head. Perhaps better diagnostic methods are detecting more cancer of the head, or perhaps there is really a greater incidence of head cancer. Regardless of the cause, more cancers of the eye, ear, nose and throat are being diagnosed and successfully treated during recent years. The past two years have been especially notable for the increase in malignancies of the ear which have come to my attention. The petrous portion of the temporal bone was commonly involved in these cases.

The following comments by current authors on troublesome situations having benign aspects are most worthy of note. Abscesses and hemorrhages in the neck sometimes present benign pictures. In considering abscesses caused by esophageal rupture, Hunt² makes clear the real danger of apparently innocent causative foreign bodies such as chicken and fish bones. He also makes corrective surgery the imperative procedure instead of the usual watchful waiting. Too often hopeful measures are employed by the unfortunate endoscopist who has perforated an esophagus with a scope. The most indicative symptom in these patients is their collapse and shock at the time of perforation.

Laryngotracheobronchitis is an all inclusive name which received the critical attention it deserved by Evans of Boston.³ Two of the three cases he reports were due to the staphylococcus. About two years ago I was struck by the severity of upper respiratory infections in which the staphylococcus was the predominating organism. The importance of my impression was again accentuated one year ago when two occurrences of staphylococcus infection in different forms proved most troublesome. One was a series of five mastoids which required repeated operations to effect a cure, and one of the five patients died. The other startling series was reported to me by Dr. Reynolds. The series included many cases of

laryngeal involvement with concurrent emphysema. Her effective remedy was staphylococcus toxoid plus sulfathiazole. These she will report in detail at some future time. Bacteriophage was used by Evans. The warning signs are the croupy cough, cyanosis, dyspnea and a slow discouraging convalescence.

Dr. Mark Glaser of Los Angeles makes a very pertinent statement regarding neuralgias. He says, "the proper recognition of these varied and multiple neuralgias has prevented useless surgery upon the teeth, sinuses and even abdomen." To this statement I subscribe. A proper search will disclose the cause of many neuralgias, and no methods now known will relieve some.

A true tic is of a severity to isolate itself from any other type of face pain. Its identity is further established by the characteristic trigger zone, interference with which inaugurates an attack. Tic douloureux is the unwilling agent for ear, nose and throat surgical sales. The dental fraternity has a dividend occasionally from the same agent. I have found no satisfactory procedure to equal the selective section of the fifth nerve. Alcohol injections, trichlorethelene, foreign protein injections, allergin eliminations and the usual vitamin products have all claimed their own share of relieved patients. None of them relieves any considerable number.

CONCLUSION

Do not go to sleep on the doorstep of everyday complaints.

121 East 60th Street

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THE PRECIPITABILITY AND SPECIFICITY OF CERTAIN FRACTIONS OF *MONILIA ALBICANS**

ALBERT P. MCKEE, Iowa City

Previous to the introduction of pure culture technic to the microbiologists of the world, the study of mycology as related to disease was in advance of the study of bacteriology in the same relationship. However, with the advent of Koch's contribution of pure culture study, bacteriology as a science took on tremendous proportions. The

*Thesis which was awarded the 1940 Baldridge-Beye Memorial Prize. The author was a junior medical student at the University of Iowa, College of Medicine.

fungi, once of primary concern due to their relatively large size, were practically forgotten.

The impetus gained by the science of bacteriology at this early day has slackened but little. Definitive studies have been made in the fields of metabolism, which include studies of growth requirements and toxic products, and in the fields of serology, which include the memorable achievement of separating, to date, thirty-one distinct types of one species and the attempt to establish specific therapy for each type. To this we might add such feats as the synthesis of an artificial antigen almost as specific as the natural antigen. Even such a brief review as set forth above cannot help but impress one with the advances that have been made in the science of bacteriology.

In comparison, we note the remarkable inadequacy of methods employed in the study of pathogenic fungi, and the dearth of knowledge accumulated concerning them since the discovery of Koch. For the sake of illustration let us assume that we are confronted with an exudate collected from a pathologic source. The exudate contains questionable mycelia and budding cells and we make the noncommittal diagnosis, yeasts. What is the extent of the task that lies before us before we can determine the species with any degree of accuracy? Assuming that these cells lack the double-walled appearance of the *Blastomyces*†, we must still discriminate among the *Saccharomycetes*, *Endomycetes*, *Torulae* and the *Moniliae*. If mycelia are definitely demonstrated, the *Saccharomycetes* and *Torulae* are no longer of concern to us. The task still remains to establish that the organism does or does not form ascospores. If mycelia are not demonstrated we are not concerned with the *Moniliae* or the *Endomycetes*, but the question of the presence or absence of spores still confronts us. The demonstration of mycelia or the failure to do so usually takes only a few days; however, the production or failure to produce spores cannot be ascertained in less than two weeks. Even then, one turns in his diagnosis hesitatingly for fear that spores will be forthcoming at a later date and that he will have to change his diagnosis.

This is only one example, but one could hardly say it is not characteristic. It does lead one, however, to two important conclusions: first, that the diagnosis of fungi as the etiologic agents in disease processes is often sufficiently tardy to allow the patient either to recover or to be subjected to the effects of the fungus for a prolonged period of time, before an accurate diagnosis has been established; and second, that correlation between species of the fungus on the one hand, and type

of therapy, prognosis, etc., on the other hand, is of little value unless a timely diagnosis of fungus is available.

The timely arrival at a diagnosis is not the only important consideration in dealing with fungi and fungus diseases. The rôle of fungi in the "ide" eruptions and other conditions of hypersensitivity is well worth mentioning. The study of pathogenic fungi then should extend beyond mere classification and include a consideration of their "break down" products, the rôle they play in disease, their antigenicity and toxicity. It is with this in mind that this paper is written. It is obvious that no one worker can settle all phases of this problem. There are numerous problems connected with each species and there are many species. This paper is concerned particularly with *Monilia albicans* and the related *Moniliae*. It seems well to present at this point a brief review of the methods currently employed in the identification of the *Moniliae*.

Until recent years the species of *Monilia* were identified almost exclusively by their morphology and fermentation characteristics. In regard to the suitability of this method, workers in this field seem to be of diverse opinions. Dalmat¹ makes this statement, "The disadvantage of depending upon fermentation tests to distinguish species of *Monilia* is that such tests are not constant; species which have once or twice fermented certain sugars with gas production have often failed to so act on a subsequent occasion." On the basis of morphology, cultural characteristics and fermentation reactions, Martin, Jones, Yao and Lee² have divided the genus *Monilia* into six species: *albicans*, *parapsilosis*, *candida*, *Krusei*, *mortifera* and *stellatoidea*. The last named species was discovered in their own laboratory. Wickerham and Rettger³ conclude from their studies on the morphology and fermentation reactions of *Monilia albicans* that, upon employing broad morphologic differences and carefully controlled sugar fermentation, this species is quite constant. Lamb and Lamb⁴ conclude from their experiments that fermentation is quite reliable if the tests are carried for four or five weeks and then a careful check made to ascertain whether or not the sugar was actually utilized.

Aside from the fact that there is some difference of opinion in regard to the suitability of morphology and fermentation reactions for classifying the species of *Monilia*, there remains the time-consuming difficulty of sporulation, so necessary in establishing the genus *Monilia*. Time is of great importance to the medical mycologist when diagnosis is concerned. Considerable time has been

†Names in more common usage among medical mycologists are used in this article.

saved in the science of bacteriology by resorting to serologic methods of identification, and accuracy has not been sacrificed by these methods. Naturally, one would wonder why these methods have not been applied to mycologic diagnoses. Considerable work has been done along these lines. Since the work of Heidelberger and Avery⁵, considerable attention has been paid to the rôle of specific substances derived from various organisms that might lead to earlier and more accurate diagnoses. The field of mycology has not escaped such investigations. Mueller and Tomcsik⁶ in 1924 prepared a gum from yeast which would precipitate with its antiserum in a dilution of 1:800,000. Since that time other investigators, Kurotchin and Chu⁷, Kesten, Cook, Mott and Jobling⁸, Kesten and Mott⁹, Wong¹⁰, Stone and Garrod¹¹, have investigated the use of the precipitin test as a method of diagnosis in the field of medical mycology. Nor has the work been limited to precipitin studies. Stone¹² investigated ten cases of thrush as to etiology and found all ten *Moniliae* isolated from these lesions to be identical by the complement fixation technic, using a saline washing of the cells as antigen. This author encountered difficulty in employing this method and cross absorption for differentiation between *Monilia albicans* and related species of the same genus.

The production and use of agglutinins for diagnosis and classification of the *Moniliae* have been studied by such workers as Fineman¹³, Hines¹⁴ and Benham¹⁵. Fineman was unable to produce agglutinins in sufficient titer to be used diagnostically. Hines found *Monilia psilosis* to be variable in its fermentation and agglutinin reaction. Benham found *Monilia psilosis* to be identical with *Monilia albicans*. She concluded from her studies that, by the use of agglutinin absorption and other studies, morphology, culture characteristics and fermentation, a reasonable degree of accuracy could be obtained in diagnoses of the *Monilia* group. Much crossing was shown by direct agglutination technic of *Monilia albicans* with related species.

A further consideration as to the applicability of these various methods will be considered in the discussion of this paper. At this point, the precipitation technic seems to offer the best serologic possibilities as far as diagnosis is concerned, for the following reasons: first, it obviates the difficulties encountered in attempting to obtain stable suspensions of organisms whose formation of mycelia tends to make spontaneous agglutination a rather common occurrence; second, it obviates the technical difficulties of complement fixation; and

third, it offers a method whereby the total components of the cell may be dealt with, thereby increasing the possibilities of discovering a specific fraction from that cell. Heretofore, studies in precipitation technic in regard to the *Moniliae* have been conducted with the stress laid upon an acid- or neutral-soluble, alcohol- or acetone-precipitable fraction. Such stress has been prompted by the discoveries of Heidelberger and Avery. Since the time of their contribution of this nature, subsequent workers have found that specificity does not always reside in the polysaccharide fraction, for it may well be protein in nature.¹⁴ Further, it is logical to postulate that specificity may well occur in substances neither protein nor carbohydrate, or that specificity may well reside in polysaccharide of different make-up from that described by Heidelberger and Avery. In brief then, the concern of specificity encompasses each and every fraction of the total cell, alone or in complex attachment to other substances. It is with this in mind that the author has set out to study a number of different fractions of *Monilia albicans* as to their precipitability and specificity. It seemed well to limit the scope of this paper, as far as specificity is concerned, to the species comprising the *Monilia* group, since it is within this group that cross reactions have been most apparent in the past, and in a later study to extend the investigation to related genera.

MATERIALS

Antiserum: Prepared by inoculating rabbits intravenously with whole cells, acetone-killed. Three series of injections were given, six successive days of one injection each day, with an eight-day rest period between each and between the last series and the bleeding time. The cell suspension used was standardized against a number three barium sulphate nephthelometer, and one-fourth of a cubic centimeter, one-half of a cubic centimeter, and one cubic centimeter were given respectively in each series.

Cultures: Obtained from Dr. Donald S. Martin, Duke University, Durham, North Carolina. From his studies of the *Monilia*, employing morphology, culture characteristics and fermentation studies, he recognized six distinct species: *albicans*, *parapsilosis*, *candida*, *Krusei*, *mortifera* and *stellatoidea*. The last of these was discovered recently in the bacteriology laboratories of Duke University².

Fractions tested: *Monilia albicans* was grown forty-eight hours on two per cent dextrose agar in large Roux flasks. The growth was washed off with ice cold 0.9 per cent saline and centrifuged.

The pasty sediment was spread out in a thin layer in 250 cubic centimeter centrifuge bottles and dried under continuous vacuum while in a frozen state. Ten gram samples of this material were ground for two hours in a rotary ball mill at —80 degrees C. The material was then extracted in the rotary mill for thirty minutes at room temperature in 0.9 per cent saline. The cell debris was centrifuged down and the supernatant filtered through an "N" Berkefeld candle. The yellowish, clear solution was separated into four fractions, A, B, C and D, as follows:

Fraction A: Using 1/N NaOH, the alkali-insoluble fraction was precipitated out completely as shown by checking the supernatant after centrifuging out the precipitate. The precipitate was dissolved in 1/N HCl and reprecipitated. This procedure was repeated twice more. This fraction was then precipitated with 95 per cent alcohol, dried rapidly under vacuum and weighed. The weight was 18 milligrams. A one per cent solution of this fraction was made, and after NaCl and pH adjustments were made, it was used for precipitin tests. The chemical nature of this fraction has not been definitely determined. Using another batch of this substance prepared the same way, the substance was found to be insoluble in alkali, insoluble at 100 degrees C. at pH 7.6. The Molische test was faintly positive on a one per cent solution. The common protein tests were either faintly positive or negative (Millon's, biuret, xanthoproteic, Hopkin's-Cole.) The chemical nature of this compound is under investigation at the present time.

Fraction B: Following the precipitation of the alkali-insoluble fraction, 1/N HCl was employed to precipitate out the acid-insoluble portion. This fraction was reprecipitated three times after solution with 1/N NaOH and finally precipitated with 95 per cent alcohol. It was then rapidly dried in vacuo and weighed, (yield 36 milligrams). A one per cent solution was made from this fraction and NaCl and pH adjustments made. On another batch prepared the same way, positive biuret, xanthoproteic, Molische and Hopkins-Cole tests were obtained. This material is probably a nucleoprotein. Its more precise chemical nature is still under investigation.

Fraction C: After removing the acid- and alkali-insoluble fractions, five volumes of ethyl alcohol were added to the supernatant. This fraction was dissolved in saline and precipitated three times by ethyl alcohol, dried in vacuo and weighed. It weighed 29 milligrams. A one per cent solution was made, NaCl and pH were adjusted. Protein tests on another batch of this fraction prepared

the same way were entirely negative. The Molische test was positive in very dilute solutions. This fraction was assumed to be carbohydrate. After prolonged hydrolysis it yielded a reducing sugar, which proved to be glucose.

Fraction D: Working with another batch of extracted *Monilia albicans* cells it was found that after removing fractions A, B and C with five volumes of acetone, a fourth fraction could be obtained by increasing the acetone concentration to eight volumes. None of the methods employed in isolating fractions A, B and C removed the yellowish color that was present in the original extract. Upon the addition of eight volumes of acetone a definite yellowish layer settled to the bottom of the flask. This oily-yellow material went into solution readily with distilled water after the acetone had been poured off. It was re-separated in this fashion three times and dried in vacuo. The weight of this fraction was 361 milligrams. It was made into a ten per cent solution with NaCl and pH adjusted. This solution gave positive Molische, xanthoproteic, Hopkin's-Cole, biuret and Millon's tests. It retained a distinct yellow color in a dilution of 1:1,000. It was presumed to be a flavoprotein. Its chemical nature is being more thoroughly studied.

METHODS

The ring precipitation technic was used. The antiserum was used in a 1:3 dilution. The solution to be tested was diluted successively by tens, in 0.9 per cent saline. Double controls were run in all cases, saline over antiserum and fraction over normal serum. After layering, the tubes were allowed to remain at room temperature for two hours. The reading was then taken, antiserum and overlaying solution mixed, and the tubes placed at four degrees C. overnight. The final reading was taken the following morning. The results of fractions A, B, C and D, in regard to their precipitability and specificity, appear in Tables I, II, III and IV. Previous to the isolation of fraction A, the experiments conducted by this author were on the acid-soluble, alcohol-precipitable fraction.

TABLE I
Fraction A: Alkali-Insoluble Fraction from *M. Albicans*

	Dilutions						
	1:100	1:1,000	1:10,000	1:100,000	1:1,000,000	1:10,000,000	1:100,000,000
ANTISERA							
<i>Monilia albicans</i>	+	+	+	+	+	+	—
<i>Monilia parapsilosis</i> ...	—	—	—	—	—	—	—
<i>Monilia candida</i>	—	—	—	—	—	—	—
<i>Monilia Krusei</i>	—	—	—	—	—	—	—
<i>Monilia mortifera</i> ...	—	—	—	—	—	—	—
<i>Monilia stellatoidea</i> ..	+	+	+	+	+	+	—
Normal rabbit serum	—	—	—	—	—	—	—

Such a fraction actually contains both fractions A and C. The results of such experiments in regard to precipitability and specificity are shown in Table V. Absorption of precipitins from anti-albicans serum was attempted by using the compound fraction A and C. This was done before the isolation of the A fraction. The results of this experiment

TABLE II
Fraction B: Acid-Insoluble Fraction from *M. Albicans*

ANTISERA	Dilutions						
	1:100	1:1,000	1:10,000	1:100,000	1:1,000,000	1:10,000,000	Saline 0.9%
<i>Monilia albicans</i> . . .	+	+	+	+	—	—	—
<i>Monilia parapsilosis</i> . . .	—	—	—	—	—	—	—
<i>Monilia candida</i> . . .	—	—	—	—	—	—	—
<i>Monilia Krusei</i> . . .	—	—	—	—	—	—	—
<i>Monilia mortifera</i> . . .	+	+	+	+	—	—	—
<i>Monilia stellatoidea</i> . . .	+	+	+	+	—	—	—
Normal rabbit serum	—	—	—	—	—	—	—

are also shown in Table V. To arrive at an opinion concerning the specificity of surface antigenic structure of diverse yeasts, agglutination tests were carried out on yeasts from four genera. This also served as a check on direct agglutination as a practical method for discriminating among these same yeasts. The results of the agglutination tests are tabulated in Table VI. Finally, to determine the relative specificity of some of the commercial extracts of *Monilia albicans* used for skin testing, one of these extracts was run against antiserum of

TABLE III
Fraction C: Precipitated With Five Volumes of Ethyl Alcohol Following the Removal of Fractions A and B

ANTISERA	Dilutions						
	1:100	1:1,000	1:10,000	1:100,000	1:1,000,000	1:10,000,000	Saline 0.9%
<i>Monilia albicans</i> . . .	+	+	+	+	+	+	—
<i>Monilia parapsilosis</i> . . .	+	+	+	+	+	+	—
<i>Monilia candida</i> . . .	+	+	+	+	+	+	—
<i>Monilia Krusei</i> . . .	+	+	+	+	+	+	—
<i>Monilia mortifera</i> . . .	+	+	+	+	+	+	—
<i>Monilia stellatoidea</i> . . .	+	+	+	+	+	+	—
Normal rabbit serum	—	—	—	—	—	—	—

each of the six species of *Monilia* as listed by Martin. The results of this experiment appear in Table VII.

RESULTS

The results of the experiments reported in this paper are listed for the most part in table form, thus setting forth the material in a more coherent and concise form than could be accomplished by a running discussion. A few remarks are, however, essential for accurate interpretation of the results as they stand. In Table I one should note the high dilution of the A fraction that can be made and still obtain a definite precipitin reaction. It

should also be noted that *Monilia stellatoidea* gives equally as sensitive a reaction. The importance of running a control both on the diluting substance, namely, 0.9 per cent saline, and the fraction in question against normal rabbit serum cannot be overemphasized. When dissolving the solid fraction with acid one should carefully come as close to neutrality as possible without precipitating the substance. The author usually brought the solution to pH 6.8. Running the fraction over normal rabbit serum then rules out the question of iso-electric precipitation of the antiserum proteins. If attention is not paid to this detail the first three dilutions are likely to be sufficiently acid to precipitate the antiserum on an iso-electric point basis.

The same precaution is necessary in dealing with fraction B as is referred to in the above paragraph. In Table II we note the relatively lower titer even with homologous antiserum. Another fact that is apparent is the identical titer of *Monilia albicans* and *Monilia stellatoidea*.

TABLE IV
Fraction D: Insoluble in Eight Volumes of Acetone After A, B and C Fractions Have Been Removed

ANTISERA	Dilutions						
	1:100	1:1,000	1:10,000	1:100,000	1:1,000,000	1:10,000,000	Saline 0.9%
<i>Monilia albicans</i> . . .	—	—	—	—	—	—	—
<i>Monilia parapsilosis</i> . . .	—	—	—	—	—	—	—
<i>Monilia candida</i> . . .	—	—	—	—	—	—	—
<i>Monilia Krusei</i> . . .	—	—	—	—	—	—	—
<i>Monilia mortifera</i> . . .	—	—	—	—	—	—	—
<i>Monilia stellatoidea</i> . . .	—	—	—	—	—	—	—
Normal rabbit serum	—	—	—	—	—	—	—

In Table III one can readily see, with the exception of *Monilia Krusei*, the titers are very close. Also, with this fraction as with A and B, the titers of *Monilia albicans* and *Monilia stellatoidea* are identical.

It is apparent from Table IV that fraction D as prepared by the method described is not capable of forming visible precipitate with homologous or heterologous antibodies. This substance is to be reinvestigated in the future in regard to its possible rôle as a simple hapten. Inhibition tests should settle the question, if such is the case.

The results listed in Table V should point one to the distinctiveness of the *Torula* organisms even when unabsorbed antiserum is employed. Conversely one cannot help but note the broad overlap of the three remaining genera when a complex, such as has been investigated in the past, is used in an attempt to get at a specific substance.

Table VI again shows the individuality of the *Torula* group, this time in the specificity of surface antigen. The broad overlap of the species

representing the other three genera should be noted.

Table VII should make one aware of the definite lack of specificity that one can encounter in commercial extracts of *Monilia albicans*.

DISCUSSION

It can be repeated for the sake of emphasis that the majority, if not all, of the attempts to isolate a specific fraction from *Monilia albicans* have been directed toward the isolation of an acid-soluble, alcohol- or acetone-insoluble polysaccharide. The reason which might well be responsible for this has been pointed out above. It became common opinion among serologists that the specific frac-

TABLE V
Monilia Albicans Antiserum Overlayed With Acid-Soluble, Acetone-Insoluble Extracts from Species Representing Four Different Genera, Before and After Absorption

FRACTIONS FROM	Titer					
	Unabsorbed	Absorbed with A & C complex of <i>M. parapsilosis</i>	Absorbed with A & C complex of <i>M. candida</i>	Absorbed with A & C complex of both <i>candida</i> and <i>parapsilosis</i>	Diluent control	Serum control
<i>Torula rosea</i> *	—	—	—	—	—	—
<i>Torula histolytica</i> *	—	—	—	—	—	—
<i>Endomyces hordei</i> *	—	—	—	—	—	—
<i>Endomyces javanensis</i> *	—	—	—	—	—	—
<i>Saccharomyces exiguus</i> *	—	—	—	—	—	—
<i>Saccharomyces cerevisiae</i> *	—	—	—	—	—	—
<i>Saccharomyces pastorianus</i> *	—	—	—	—	—	—
<i>Saccharomyces from vagina</i> *	—	—	—	—	—	—
<i>Saccharomyces from vagina</i> *	—	—	—	—	—	—
<i>Monilia parapsilosis</i> *	—	—	—	—	—	—
<i>Monilia parapsilosis</i> *	—	—	—	—	—	—
<i>Monilia parapsilosis</i> *	—	—	—	—	—	—
<i>Monilia parapsilosis</i> *	—	—	—	—	—	—
<i>Monilia candida</i> *	—	—	—	—	—	—
<i>Monilia candida</i> *	—	—	—	—	—	—
<i>Monilia stellatoidea</i> *	—	—	—	—	—	—
<i>Monilia mortifera</i> *	—	—	—	—	—	—
<i>Monilia Krusei</i> *	—	—	—	—	—	—
<i>Monilia albicans</i> *	—	—	—	—	—	—
<i>Monilia albicans</i> *	—	—	—	—	—	—
<i>Monilia albicans</i> *	—	—	—	—	—	—
<i>Monilia albicans</i> *	—	—	—	—	—	—
<i>Monilia albicans</i> *	—	—	—	—	—	—
<i>Monilia albicans</i> *	—	—	—	—	—	—

*Cultures supplied by L. J. Wickerham, Department of Bacteriology, University of Illinois, Urbana, Illinois.

tion was very susceptible to alkali. For this reason many workers caution concerning neutralizing the acid extract too much and end up on the alkaline side. The opinions in this regard have changed today but experiments on *Monilia albicans* still do not indicate that this earlier idea has been forgotten. As has been shown in this experiment a very definite fraction (A) can be precipitated out by bringing the reaction over on the alkaline side (about pH 11.0). If this fact is not taken into account, the usual procedure of bringing the acid-extract to neutrality and then precipitating with alcohol, brings down two fractions instead of one. Obviously, if one only is capable of precipitating with the homologous serum there is no problem.

That this is not the case is shown in Tables I and III. Not only are both capable of precipitation, but, in addition, they are capable of so doing in high titers.

A second point, well worth making, is lack of specificity of fraction C; yet this is the obvious polysaccharide component of the complex. It

TABLE VI
Unabsorbed *Monilia Albicans* Antiserum

ORGANISMS	Titer									
	1:10	1:20	1:40	1:80	1:160	1:320	1:640	1:1,280	1:2,560	1:5,120
<i>Monilia albicans</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia albicans</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia albicans</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia albicans</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia albicans</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia albicans</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia parapsilosis</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia parapsilosis</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia parapsilosis</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia parapsilosis</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia candida</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia candida</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia mortifera</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia Krusei</i>	+	+	+	+	+	+	+	+	+	—
<i>Monilia stellatoidea</i>	+	+	+	+	+	+	+	+	+	—
<i>Saccharomyces exiguus</i>	+	+	+	+	+	+	+	+	+	—
<i>Saccharomyces cerevisiae</i>	+	+	+	+	+	+	+	+	+	—
<i>Saccharomyces pastorianus</i>	+	+	+	+	+	+	+	+	+	—
<i>Saccharomyces from vagina</i>	+	+	+	+	+	+	+	+	+	—
<i>Saccharomyces from vagina</i>	+	+	+	+	+	+	+	+	+	—
<i>Torula rosea</i>	—	—	—	—	—	—	—	—	—	—
<i>Torula histolytica</i>	—	—	—	—	—	—	—	—	—	—
<i>Torula histolytica</i>	—	—	—	—	—	—	—	—	—	—
<i>Torula histolytica</i>	—	—	—	—	—	—	—	—	—	—
<i>Torula from vagina</i>	—	—	—	—	—	—	—	—	—	—

gives a definite Molische test even in high dilutions. The other component of the complex, fraction A, is quite non-reactive to the ordinary tests for carbohydrates and proteins. It is a substance that could well be precipitated down with fraction C and be consistently overlooked as an entity; yet this fraction comes closer than any at determining specificity within the *Monilia* group.

TABLE VII
Oidiomycin: Commercial Preparation—Dilutions Made from Extract

ANTISERA	Dilutions					
	1:10	1:100	1:1,000	1:10,000	1:100,000	1:1,000,000
<i>Monilia albicans</i> ...	+	+	+	+	+	—
<i>Monilia parapsilosis</i> ...	+	+	+	+	+	—
<i>Monilia candida</i> ...	+	+	+	+	+	—
<i>Monilia Krusei</i> ...	+	+	+	+	+	—
<i>Monilia mortifera</i> ...	+	+	+	+	+	—
<i>Monilia stellatoidea</i> ...	+	+	+	+	+	—
Normal rabbit serum	—	—	—	—	—	—

It would be wishful thinking to state bluntly that *Monilia albicans* and *Monilia stellatoidea* are one and the same. Nevertheless, it must not be forgotten that this organism has been discovered only a short while and not a great number of them have been isolated and studied. One must never forget the possibility of strain variation within a

species. Conversely, one must recognize the possibility of serologic components, identical in every respect, yet existing in quite different species. *Monilia stellatoidea*, in the opinion of the author, needs further study and is receiving the same in this laboratory and others.

Fraction B represents an obvious protein constituent of *Monilia albicans* and is, not unlikely, a nucleoprotein. Even this fraction offers more toward specificity than does the obvious carbohydrate.

Fraction D showed no precipitation with the antisera even in a 1:100 dilution. The combination of antibody and fraction may form a soluble compound. Such a combination could be demonstrated by inhibition or complement fixation tests. The project is under study at the present time. In the meantime a portion of this fraction was turned over to Dr. J. R. Porter and M. J. Pelczar, Jr., of the State University of Iowa, Bacteriology Department, to determine its effect as a growth factor. Flavoprotein has recently been shown to have a definitely enhancing effect upon the growth of some micro-organisms. An interesting factor about this fraction is the intense color it possesses even in dilute solutions.

The distinct difference between the *Torula* group and the other three genera as noted in Table V is an interesting one. The tendency of *Torula histolytica* to form capsules in the animal body, the tendencies in regard to eosinophilic staining and the slimy colonies they produce as they age, all lead one to suspect that there might well be an essential difference in their chemical make-up. The lack of cross-precipitation and cross-agglutination leads one to believe that, serologically speaking, this group offers considerable promise for individual study. Table V also shows the folly of attempting to absorb *Monilia albicans* antiserum with the fraction A and C complex. Inasmuch as both of the fractions have high titers the more specific and less specific engage in the antibody absorption simultaneously and the titer is soon reduced to zero. Once the C fraction is removed absorption is unnecessary to prevent cross-precipitation with *Monilia candida* and *parapsilosis*. Rabbits already have been inoculated with the recently isolated A fraction and, if antigenic, a study will soon be launched to determine the specificity of this fraction as compared with species within other genera. It is the ability to rule out closely related genera that really makes accessible the more timely diagnosis.

Direct agglutination would offer a simple method of rapid diagnosis of the *Monilia* group if it were more dependable. The instability of sus-

pensions and the wide crossing does not offer too much in its favor as a practical method. It seems rather obvious that the surface antigens or, perhaps, antigens available through the surface, are very similar in the case of the *Saccharomycetes*, *Endomycetes* and *Moniliae*. It would seem, therefore, that a method which took into consideration the whole of the cell and its integral parts would be a more satisfactory method to apply to the study of the fungi.

In regard to the use of commercial oidiomycin for indication of sensitivity Trussell¹⁶ draws the following conclusions. "A large percentage of adult women are skin sensitive to commercial oidiomycin. It would appear that the use of this fungus extract for skin tests would be of limited value in indicating suitable cases for desensitization of patients with chronic *Monilia vaginitis* on the theory that the condition may be on an allergic basis unless focal flare-ups or stronger skin reactions than normal can be shown to occur consistently." A broth culture extract of *Monilia albicans* would contain all of the fractions mentioned in this paper, A, B, C and D. One could hardly expect such an extract to be specific. It is possible that having removed some of the nonspecific fractions of such an extract, which might remove some of its irritating properties, the skin test might come to be on a more practical basis. Certainly the conclusions drawn by the above worker could have a very plausible explanation on the basis of the varied ingredients of the material used for testing.

CONCLUSIONS

1. That the fraction most commonly employed in previous investigations of *Monilia albicans* in regard to specificity must have contained two distinct fractions.
2. That the obvious polysaccharide fraction, giving a positive Molische test even in weak dilutions, is not as specific as the accompanying A fraction described in this paper.
3. That the alkali-insoluble fraction is the most specific of any fraction described in this paper.
4. That the flavoprotein, as isolated in this report, does not give visible precipitation with homologous or heterologous antisera.
5. That the precipitation technic offers better possibilities for rapid exclusion of other members of the genus *Monilia* from *Monilia albicans*, with the exception of *Monilia stellatoidea*.
6. That inasmuch as the titer of *Monilia albicans* and *Monilia stellatoidea* antisera was the same against all four fractions isolated, it would be well to study carefully the grounds upon which these two organisms are differentiated.

7. That the use of a single fraction for skin testing purposes would seem more logical than the use of an extract which contained at least four different ones.

SUMMARY

Four fractions of *Monilia albicans* were isolated and studied as to their precipitability and specificity. A commercial extract of *Monilia albicans* was checked in regard to its specificity. Agglutination tests were run against several species representing four different genera using *Monilia albicans* antiserum for the purpose of determining the specificity of surface antigens of the various species tested. Unabsorbed and absorbed antisera were employed to determine the specificity of the precipitin test when a complex fraction (A and C) was used.

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MANAGEMENT OF MINOR INDUSTRIAL INJURIES*

DONALD C. CONZETT, M.D., Dubuque

Webster defines management as "the judicious use of means to accomplish an end; skillful treatment." This definition of management applied to industrial injuries gives rise to problems which are of real importance to physicians.

At the time the first compensation laws were enacted in 1911, medical care of injured employees was in a chaotic state. Laws on the statute books of the individual states concerning employer-employee relationship were of the type commonly designated as "employers liability laws." This employer liability system was merely an improvement on English law which in turn had its basis on the principles of the old Roman law applying between strangers, not as between employer and employee. Under this code an employer was liable only for the results of his own personal wrong doing; negligence on the workman's part or on the part of a fellow workman played no part in recovery for injury.

It is obvious that, with such a system, many injustices occurred in legitimate cases, and it was not long until the "employer liability" legislation became effective. Again errors appeared and it became necessary for the injured workers to employ legal talent in controversial or disputed cases. The incapacitated worker was unable to pay his attorney a retainer fee; hence a system of contingent fees arose. The unhappy circumstances in this arrangement are all too obvious to need explanation; suffice it to say that all too frequently the injured found himself wondering at the time of settlement who really had been injured. Strangely enough through all these years nobody had thought about who might have to pay the doctor. That individual most responsible for returning the injured man to work was blithely shelved and disregarded while the courts rang with legalistic bombast concerning monetary settlement. The injured man was expected to provide himself with medical care. However, if settlement was made and a decision rendered showing negligence (and what attorney could not somehow inject that thought!) the doctor booked his charges under experience. The busy surgeon, he who was probably best qualified by skill and experience, was not attracted to such work; consequently medical care was little better than the rules governing it.

Today, however, the situation is vastly improved. From a system wherein the lawyer got much and the doctor little, a plan now operates

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wherein the lawyer complains of his negligible returns while the doctors, according to Best's Insurance Reports for 1937, receive, along with hospitals, between forty-five and fifty million dollars annually. We are in a position far superior to that of our predecessors; consequently the obligations of management must be met intelligently.

All states, save two, have workmen's compensation laws but in no two of these jurisdictions are the laws the same. Uniformity of law throughout the nation would not be practical, for working and living conditions vary in different sections as do the types of labor. Iowa is predominately agricultural and its trend is reflected in the constituency of the governing bodies. The Iowa Assembly in the past has not been overly receptive to increases in compensation payments either for workmen's disabilities or medical care. Recently, however, increases in medical allowances have provided financial impetus to the physician to make this work more attractive.

What then does medical care of employees entail under existing laws in this state? In the first place, Iowa as yet does not recognize occupational diseases in its compensation set-up. We are, therefore, limited to care of employees injured in the course of their employment. Further, the physician has a condition differing from the usual patient-physician relationship, for in compensation cases he has a three-fold responsibility: first and fundamentally to the patient, but because he is now working under conditions governed by law, a responsibility exists to the employer and his insurance carrier, and to the commissioner. This does not mean that the responsibility toward the individual should be lessened; it means that even greater attention must be given to him, because the sooner the man is returned to his work fully recovered the less time is lost to the company and the less is the financial outlay required of the insurance carrier.

Few physicians are wilfully negligent in handling compensation cases. Most disputes arise from the physician's lack of knowledge of existing regulations. A question frequently asked is that regarding choice of physicians. In a personal communication from the Commissioner in answer to this question he writes as follows: "With reference to who may exercise the choice or selection of physician, I beg to advise the Iowa Workmen's Compensation Law provides that the employer shall furnish reasonable and competent medical and hospital services and supplies. However, the law does not expressly provide who has the choice. Our department has therefore held that in the first instance, it is fair to presume it was the legislative

intent that the employer has the right to make the choice, assuming that the employee expects the employer to pay therefor in the limits prescribed by the law, which is not to exceed \$600.00. On the other hand if the employee does not see fit to accept the physician chosen by the employer, then and in such case, the employee has the right to make his own choice but at his own expense. Assuming that the employee makes a choice at his own expense but the employer is of the opinion that the physician who is rendering service selected by the employee is not accomplishing the desired result, then and in such case, the employer may again tender medical service to the employee, and if the employee persists in using a physician when it is ultimately shown that the physician thus chosen by the employee is incompetent, then the Commissioner in passing upon compensation benefits will exercise the right to take such matters into consideration in determining the extent of disability."

The bugbear that deters many physicians from handling compensation work is the matter of records. The experiences of the World War with its endless, and seemingly needless, paper work is too recent in the minds of many to bother with this tedium. There is no denying that these records are a bothersome but necessary chore if compensation practice is to be adequately handled.

Recently, at the request of an insurance company, I saw a young man who had received a penetrating injury to his forearm when he fell on an ice pick ten weeks prior to my examination. He had had excellent treatment, for the wounds had healed promptly with no evidence of infection even though the wound had extended through the entire thickness of the forearm. However, his attendant had ignored or else not elicited a history of tingling in the ring and little fingers. Thereupon the physician had filed his final report as no permanent disability. Ten weeks after injury this boy had a complete sensory loss over the volar surface of these two fingers, atrophy of the adjacent palm and markedly diminished grip. The company had to reopen the file and prepare to make payment far in excess of their established reserve for this case.

Another boy was recently seen for examination of a supposed hand injury prior to a hearing before the Commissioner's deputy. His injury had been a minimal puncture wound from which a superficial infection developed. Adequate treatment, however, had produced a complete recovery. Nevertheless, anxious to collect damages, this boy had employed an attorney who had built up a bizarre case with grotesque neurologic phenomena. The case, as the hearing progressed, was obviously one

of malingering but the defense suffered a distinct setback when the record was found to be virtually blank. The attending surgeon had rendered excellent care but there were no records to substantiate his services. His duty had been done only in part.

No doctor can be too careful of his records in compensation cases, if not for the sake of the company, at least for his own protection. Many of these injured employees do not have the loyalty of the private patient; occasionally they want to profit through their misfortune and a doctor's negligence may be an excellent means to that end. The preliminary report of the accident by the physician is the only picture of the injured man which the insurance company sees. From it they must determine if the man has been sufficiently injured to come under the benefits of the compensation law. They must know the length of that disability and also whether there will be any permanent defects. All of these factors unite to allow them to set up their reserve, an item we will refer to later. Next, the Commissioner must receive these reports, for he must be satisfied that the injured employee has been justly dealt with and that he receives the compensation which is provided by the law. Regarding the reserve, G. Lester Marston of the American Mutual Liability Insurance Company gives an excellent description and I quote him: "If you were to build a house and your architect told you it would cost ten thousand dollars, you would see to it that you had that sum of money in the bank to pay for it. The financing of a compensation case is no different from that of financing a house, and instead of relying upon the plans of architects we must rely on doctors and surgeons to furnish specifications in the form of medical reports in order that the potential cost of that case can be properly determined. Each case is a separate bookkeeping account against which amounts are drawn for the purpose of making compensation, medical and expense payments. In order that this account may at all times be solvent, we rely to a large extent upon your full cooperation as respects furnishing us with the information requested in the medical reports."

Probably all of us have filled out hundreds of insurance blanks but we have all erred either through haste or lassitude to complete these blanks accurately, leaving them to the office force while we dashed out to play golf. We must remember that these records are in addition to being the picture of the injured, also the expression of the quality of our work to the insurance company. Most companies now use a standard form and the questions are clearly stated. The exact dates of

injury and of beginning disability are necessary in determining compensation due the injured. The description of the injury is likewise of great importance, for on this factor depends the evaluation of the case. Of equal importance is the question regarding permanent defect, for from this answer the company must arrive at an estimate of probable payment of permanent disability.

There are no specific regulations regarding treatment and it is well that there are none, for we all know that equally good results may be achieved through the use of varied methods. It is only necessary that the injured be treated to the satisfaction of all concerned and returned to work as soon as possible. Psychology plays a large rôle because employees occasionally misinterpret the law and think they have damages due them. Here the physician, while treating the injured, can explain that the compensation law is designed to care for him and his family during his enforced disability and, further, to compensate him for any defect that may result because of his injury, and is so devised that his payment is automatic and he need not employ legal aid to justify his claim.

The physician doing industrial work must be unqualifiedly impartial; if he leans toward the employee in the prolongation of his disability or bends in the employer's direction in sending the injured back to work before he is ready, he is dishonest in his duty. Mr. Clarkson, the Commissioner, has given his interpretation of the physician's attitude toward this work as follows: "The physician of all persons is in a better position to know when it is reasonably safe for the man to return to work, for he is in a position to know what effect the work may or may not have upon the injured parts." There are inadequacies in the present compensation system. Utopia is never reached but physicians can improve the care of injured employees if they will give the same thoroughness of attention to them that they give to their private patients. This, coupled with an unswerving honesty to both parties concerned, the injured and the employer, will automatically eradicate many misunderstandings.

In summary, the Workmen's Compensation Law is a workable arrangement whereby the injured receives adequate benefits and the physician reasonable fees. Demands on the physician, in the form of records, are tedious but essential to proper execution of the plan. Iowa physicians should familiarize themselves with the law and its regulations so that they may expedite the care of the industrially injured.

EARLY DIAGNOSIS OF CARCINOMA OF THE COLON*

McMICKEN HANCHETT, M.D., F.A.C.S.

Department of Surgery, Council Bluffs Clinic
Council Bluffs

We must clarify our conception of cancer of the large bowel. Loss of weight, anemia, palpable tumor mass in the abdomen and intestinal obstruction are not symptoms of carcinoma of the colon. They are terminal symptoms of metabolic and mechanical derangement of normal vital processes. I have a woman under my care at this time who had all of these symptoms. She has gained forty pounds in weight following a colostomy done six months ago. Her blood picture is again normal and she performs her household duties with ease. Since she is the wife of a farmer, you may know these duties are not inconsiderable. She has an inoperable carcinoma of the rectosigmoid with involvement of the uterus and the pelvic wall. The carcinoma is no better than it was, but her general health has improved because her digestive tract can again function normally except for the lower ten inches. Her symptoms first appeared two and one-half years before I saw her and although they were slight, recognition of their significance, together with proper examination would have given her a 50 per cent chance of complete recovery. This is a plea for greater "cancer consciousness." Any abdominal or rectal distress, even slight, which persists over any considerable time should be regarded as malignancy until proved otherwise.

The colon is divisible into right and left portions, having different embryologic development, anatomy and function. The right colon, as far as the middle of the transverse colon, together with the small intestine is developed from the midgut; its blood supply is from the superior mesenteric artery which is the artery of the midgut and its function is digestion and absorption. The left colon, including left half of the transverse colon, splenic flexure, descending and pelvic colon and rectum, is derived from the hindgut and supplied by its artery, the inferior mesenteric. The function of the left colon is storage and propulsion of the fecal stream. These differences in origin and function give rise to different sets of symptoms, which vary with the location of the neoplasm and the extent of the involvement. Early symptoms are usually vague. They are, however, recurring or constant and should be given serious and intelligent consideration.

Carcinoma of the Cecum and Ascending Colon. Since the bowel lumen is largest in this segment

of the colon and since its contents are liquid, an early small tumor may give few or no symptoms unless it encroaches upon the ileocecal valve. Discovery of a tumor by the patient or examiner may be the first sign. Discomfort in the lower right abdomen of several months' duration is the chief complaint in 90 per cent of the patients. Recurring attacks of pain frequently lead to the erroneous diagnosis of subacute or chronic appendicitis. The appendix had been removed without benefit in 15 of 100 cases studied by Priestley and Bagen. Reflex disturbances of the upper portions of the digestive tract causing anorexia, fullness after meals and eructations, frequently divert attention from the primary lesion. In advanced lesions, anemia, weakness and loss of weight may suggest pernicious anemia until the blood picture of secondary anemia directs attention to the right colon. Unexplained anemia should always suggest carcinoma of the right colon. There is rarely any marked change in the bowel habit or gross bleeding.

Transverse Colon. The lumen of this segment is narrower and the content is of thicker consistency; therefore, intestinal colic and pain, relieved by the passage of gas and feces, are characteristic early symptoms. With increasing involvement, constipation is progressive and is an important symptom in persons of previous normal bowel habits. Complete obstruction may supervene relatively early, especially when the annular constricting growth is in the splenic flexure. Except in the splenic flexure, a mid-colon tumor may be felt in about 20 per cent. Rarely, massive hemorrhage may be the initial symptom.

Descending Colon and Sigmoid. Disturbance of motor function occurs in 75 per cent of the cases. Progressive constipation is usual with periods of diarrhea and less often alternating constipation and diarrhea. Diarrhea may be the initial symptom. Later, obstruction develops with classic symptoms. Pain of some type is usual, appearing first as a sense of discomfort in the left lower quadrant. This is usually constant and increasing. Increased narrowing of the bowel is evidenced by abdominal distention, borborygmi, frequent bowel movements and reflex digestive disturbances. Gross blood and pus appear in the stool in about 50 per cent of the cases. The tumor can rarely be palpated except in the region of the sigmoid.

Rectosigmoid and Rectum. The earliest symptoms are constipation, bleeding and discomfort in the rectum. Onset of obstinate constipation in a person of cancer age; urgency on rising in the morning, with no result or only the passage of

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flatus or blood-tinged mucus, a vague feeling that something is radically wrong in the lower abdomen or a feeling of fullness or obstruction in the rectum, occurring separately or in combination, form a typical symptom complex in nearly every case of carcinoma of the rectosigmoid or rectum. A tumor in the large rectal ampulla may be virtually "silent" until far advanced, but this is unusual. Tenesmus occurs only with neoplasms situated low in the rectum. Indigestion, anemia and weakness are not characteristic of the early stages of the distal bowel carcinoma.

We may then say that symptoms of early malignancy of the colon are vague. In the right colon we find indigestion, abdominal unrest, secondary anemia and intestinal colic occasionally. In the left colon there is change of bowel habits, progressive constipation, spurious diarrhea, gas pains and gross bleeding. In the rectosigmoid and rectum early characteristics are constipation or diarrhea, bleeding and rectal discomfort.

The two chief reasons that the usual interval of eight to eighteen months elapses between the onset of the earliest symptoms and the institution of treatment are: first, the failure of the patient and first medical adviser to consider seriously the importance of the initial symptoms; and second, the failure of the physician first consulted to make a thorough examination. The early symptoms which have just been reviewed, when elicited, should immediately impress the physician with the possibility of cancer. Unfortunately, several other organic lesions of the large bowel give similar symptoms. Notable among these are non-malignant tumors, retrocecal appendiceal abscesses, bleeding internal hemorrhoids, diverticulitis and many others. Complete examination, with the supplementary methods, such as the x-ray, laboratory examination of stools and proctosigmoidoscopy usually makes the diagnosis clear. It is essential that the physical examination be methodical. It should consist in a general examination. In women, vaginal examination should precede rectal examination to determine the size, position, flexion and mobility of the uterus and the state of the adnexa, the condition of the rectovaginal septum and to detect pathology in the pouch of Douglas.

Digital rectal examination should follow. This detects practically 100 per cent of rectal carcinomata. Due to neglect of this simple procedure many patients with carcinoma are treated for months for "dysentery" or "bleeding piles." In addition to the lateral position, patients should be examined in the squatting position. Tumors of the rectosigmoid which might otherwise be missed can frequently be felt in this position. Fifteen per

cent of patients with carcinoma of the rectum and rectosigmoid coming into the Lahey Clinic, have been treated or operated upon for hemorrhoids within the period of active cancer symptoms. The peritoneal cul-de-sac should always be palpated. Detection of induration at this site frequently indicates hopeless metastases from carcinoma higher in the abdomen, usually in stomach or colon.

Proctosigmoidoscopy reveals ulcerative lesions, strictures, benign and malignant growths of the rectum and about 75 per cent of similar lesions in the distal pelvic colon. Inasmuch as about 50 per cent of all carcinomata of the large intestine are in the rectum and about 70 per cent in the rectum and sigmoid, the importance of this procedure is apparent. Failure to pass the tube through the rectosigmoid is usually due to an angulation caused by adhesions of the sigmoid or an organic obstruction, that is, stricture, neoplasm or diverticulitis.

When x-ray pictures are made all information previously gathered should be carefully considered in connection with this examination. The x-ray cannot be expected to demonstrate ulcers, small benign tumors or early carcinoma in that portion of bowel situated within the bony pelvis which is accessible to direct inspection. However, for the colon proper, fluoroscopy, roentgenography with barium enema and contrast methods, is the most valuable diagnostic procedure we have. One word of warning, however, which may not be necessary is this; no diagnostic enema should be depended upon which has not been preceded by a cleansing one.

Routine laboratory tests may include urinalysis, routine blood picture and type, Wassermann test, sedimentation rate, examination of feces for gross and occult blood, parasites and ova, and the Frei antigen skin test for venereal lymphogranuloma in suspicious cases.

Differential Diagnosis in the Right Colon: The clinical course may greatly aid in the differentiation of the more common conditions of the right colon, although the co-existence of multiple lesions must be kept in mind. Carcinoma weakness, weight loss and secondary anemia are progressive. The roentgen filling defect is usually irregular and its margins definitely rough.

Hyperplastic tuberculosis usually involves a long stretch of the ileocecum and ascending colon. It occurs especially as a secondary manifestation of pulmonary tuberculosis in persons under the "cancer age" of forty years. In 66 cases reported by Herrick, 82 per cent were under forty years of age. Hyperplastic tuberculosis has a protracted course, thus contrasting with the steady progress of carcinoma.

Actinomycosis is very rare. It runs a chronic, febrile course and in the cecum tends to involve the anterior abdominal wall and form one or two fistulae. The diagnosis is suggested by the bony hardness of the mass and verified by the specific sulphur granules.

Localized cicatrizing ileocolitis produces a tender tumefaction in the right lower quadrant, is marked by frequent febrile episodes resembling acute appendicitis and usually presents a characteristic roentgenogram, a narrow, string-like lumen of the terminal ileum.

An amebic granuloma may develop in any segment of the large bowel. Except for its shorter duration, the symptoms frequently resemble carcinoma and under this erroneous diagnosis resections have been performed, nearly always with fatal results. The x-ray does not show the clear cut picture of carcinoma. Yeoman reports four cases of amebic granuloma, one of the transverse colon and three of the rectum. He is convinced the diagnosis in these cases can be made by obtaining material from the pathognomonic ulcers through a proctosigmoidoscope and demonstrating the specific ameba.

Localized lymphosarcoma often presents a confusing picture of intestinal colic and obstruction, without bleeding. This is not the picture of carcinoma of the right colon. When suspected, deep x-ray therapy will temporarily shrink the nodules and suggest the true nature of the lesion.

Appendix. Either of two pathologic conditions of the appendix may produce tumefaction. One is a large rectocecal appendix, frequently tuberculous, adherent to the posterior abdominal wall; the other is an appendiceal abscess, enlarging slowly, with or without slight rise in temperature and leukocytosis. In either instance the patient is usually younger than the patient with cancer.

Differential Diagnosis in the Left Colon: In the left half of the colon, diverticulitis of the sigmoid is the chief organic lesion to be differentiated from cancer. The obstructive and other symptoms are much the same, but gross bleeding is rare in diverticulitis unless cancer co-exists. There is a slight rise of evening temperature and moderate leukocytosis and the tumor is not fixed unless it has fused by inflammatory adhesions into the anterior abdominal wall or the bladder. The x-ray shows a spindle-shaped filling defect, due in part to spasm, and usually shadows of extra-luminal diverticula which confirm the diagnosis. The occurrence of cancer in patients beyond the fortieth year having diverticulosis or diverticulitis is not unusual. The co-existence has been observed in from 4 to 30 per cent of operated cases. This is

thought to be coincidental and not causal. The diagnosis is made on x-ray and proctoscopic findings.

Hyperplastic tuberculosis is rare in this location. In 100 cases reported by Lockhart-Mummery, 90 were in the cecum, four were in the whole colon, and six were in the sigmoid. No tuberculous foci were found elsewhere in 76 of these cases, but the lungs of 18 showed tuberculous lesions. The majority of cases develop between the twentieth and fortieth years of life. The correct diagnosis of hyperplastic tuberculosis of the sigmoid is seldom made before surgical intervention to relieve obstruction or for the removal of a tumor, presumably malignant.

Differential Diagnosis in the Rectum: As regards carcinoma of the rectosigmoid and the rectum, two outstanding facts are not fully appreciated; first, the neoplasm is in the field accessible to both palpation and inspection; and second, approximately 75 per cent of rectocolonic malignancies involve this bowel segment. Reports from New York City Cancer Institute illustrate the segmental incidence of carcinoma of the digestive tract as determined by the accurate diagnosis on discharge. For the years 1931-1937, inclusive, the patients discharged numbered 4,673. Alimentary canal involvements were: esophagus, 148; stomach, 484; cecum, 16; colon, 46; sigmoid and rectosigmoid, 78; rectum, 360; and anus, 4; making a total of 1,136. Of the 500 malignant neoplasms of the large bowel, 360 or 72 per cent were in the rectum. This predominant incidence of cancer in the accessible terminal bowel places a grave responsibility upon the clinician for its early detection or the discovery of other lesions giving rise to similar symptoms.

SUMMARY

1. The symptoms of carcinoma are vague and indefinite.
2. These symptoms are persistent and must be considered with care.
3. The responsibility is on the first attending physician to prove, or see that proof is obtained, that the symptoms are not due to early carcinoma.
4. By subscribing to this formula we will advance in the cure of cancer of the colon.

AMERICAN RED CROSS

Annual Roll Call

November 11 to November 30

STREPTOCOCCUS INFECTIONS*

R. D. BERNARD, M.D., Clarion

Hemolytic streptococcus is one of the most ubiquitous of all micro-organisms and probably causes a greater variety of clinical types of diseases than any other single bacterial species. The production of such varying types of clinical pictures as a simple local area of suppuration, an invasive infection of the uterus, a rapidly fatal meningitis and a scarlet fever, is a remarkable circumstance.

Much of the confusion in the past regarding the specific agents of streptococcal infections may be attributed to the incorrect assumption that each disease was caused by a distinct bacterial species. Thus there came into existence "species" names, such as *St. Pyogenies* and *St. Erysipalates*, to mention only two. Recent advances in the studies of streptococci have revealed the fact that the old standard division is not sufficient for modern clinical usage. Thus we have the alpha hemolytic or viridans type; and the beta hemolytic and non-hemolytic streptococci.

The Lancefield¹ technic of classification of streptococci has introduced some new considerations which are rapidly gaining importance in both the laboratory and clinic. The Lancefield technic, which is a precipitate technic and is based on the group specific antigen contained in the organism, has demonstrated the fact that beta hemolytic streptococci can be divided into several groups which are, for convenience, indicated by letters A, B and C, et cetera. Group A is the cause of the various human streptococcal diseases. As many as twenty-seven different specific serologic types have been isolated; thus we have the possibility of specific antigens being developed in the future, much the same as we now have for pneumonia. It is now considered possible, with a set of grouping sera, for the clinician to classify accurately practically all of the streptococci which may be encountered in man.

Streptococci have been reported wherever man has been found, in the polar regions, in the tropics, in the air, dust, soil, milk, in the mouths of many animals and on the free surface of the skin on man, in his nasopharynx and in his alimentary tract. The normal habitat of the hemolytic streptococcus is in the lymphadenoid tissue of the throat. It does not grow freely on the surface of the mucous membranes, but is found in the crypts of the tonsils and in the lymphoid tissue itself. About thirty to forty per cent of normal individuals carry hemolytic streptococci in their throats at some

time. These carriers can spread organisms much easier when they have a cold.

Examination of throat swabs, cultures, exudates, cerebral spinal fluid, blood or pus will, of course, provide the clinician with the correct diagnosis. All too frequently the laboratory is not used and the presence of streptococcus is overlooked in a mixed infection. The average clinician should be able to diagnose (or suspect) a streptococcus condition by the clinical picture, but he is a wise clinician who will be "sure" he is right in all serious cases.

The introduction of chemotherapy, proseptasine, uleton, pyridine (M & B693), prontosil, neoprontosil and sulfanilamide, has simplified the treatment of all streptococcus infections, regardless of type or location. The dose of sulfanilamide is based on the amount necessary to maintain a blood concentration of eight to ten milligrams per 100 cubic centimeters, which is considered to be the optimum level of treatment. Prontosil may be used either subcutaneously or intramuscularly, 1.0 to 1.5 cubic centimeters of 2.5 per cent aqueous solution, per pound of body weight per twenty-four hours, divided into four to six hour doses. The maximum adult dose for twenty-four hours is 150 cubic centimeters. Neoprontosil is administered orally in five grain tablets. The adult dose is one grain per pound of body weight, and the daily adult limit is 150 grains.

The initial oral dose of sulfanilamide is .5 of a grain per pound of body weight. There is apparently no upper limit to the maximum daily dose, providing laboratory facilities and an adequate number of blood donors are available. However, doses of 80 grains or more per day for any extended period are the exception, and a majority of cases may be treated with smaller doses than commonly recommended. Sulfanilamide may be used in .8 per cent solution either intravenously, subcutaneously or intrathecally; the dosage is 100 cubic centimeters per twenty pounds of body weight. The maximum initial injection for adults is 500 cubic centimeters; the maintenance dosage is about 100 cubic centimeters per forty pounds of body weight every eight to twelve hours with a maximum of 1,000 cubic centimeters in twenty-four hours.

Regardless of the drug used, an equal amount of soda should be given with each dose. Children seem much more tolerant to the drug than adults. In mild cases, administration of the drug may be discontinued when the symptoms have subsided, but in all severe cases, administration should be continued from one to two weeks. In a vast majority of cases the dosage is governed, not by lab-

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oratory tests, but by the clinical course of the case plus reactions produced by the drug. I have seen practically no reactions while using neoprontosil or prontosil, and with a wider experience with sulfanilamide, reactions have been reduced to those few patients who are intolerant to the drug. I have found also that persons who experience reactions to sulfanilamide, frequently can take large doses of prontosil with no ill effects. It is not the purpose of this paper to discuss sulfanilamide as a drug, its action or toxic reactions. Needless to add, a systematic examination of urine and blood is, or should be, a part of the treatment of all serious cases.

Zinsser, Enders and Fothergill² think the use of polyvalent serum unwarranted, and do not recognize any of the so-called specific sera because "a serum to be useful would have to be type specific for the strain of organism infecting the individual patient." A single type may cause a septic sore throat in one individual, erysipelas in another, and puerperal fever in another. Therefore, the use of serum as a protective measure is debatable. Without doubt, the good results we have achieved through the use of these mixed antigens are due to the decreased incidence of the common cold, thus increasing the patient's resistance to the streptococci found normally in the throat.

Influenza. Influenza, with its well-known symptoms and almost unlimited list of complications heads the list of streptococcus infections. In October, November and December during the past five years, throat swabs and cultures, taken routinely from patients suffering from this infection, show that hemolytic streptococci were present in six per cent five years ago, and in over twenty per cent in 1939. In January and February of 1940, this incidence had jumped to over fifty per cent. In families where all of the members were ill, the percentage many times has been 100. However, the wholesale use of sulfanilamide for everyone with a cold is to be discouraged. It is true that we have no better method of ridding the lateral bands and the crypts of the tonsils of streptococcus infection than by the use of these drugs, thereby preventing a spread of the infection to the sinuses and ears, but a careful examination of the patient and observation of apparent natural resistance will be a better guide than the assumption that treating them all alike is "playing it safe." Rhodes and Afremow³ in a small series of cases found no advantage in its routine use. Certainly, surgical intervention in peritonsillar abscesses should be delayed until the hemolytic streptococcus infection is brought under control; and no corrective surgery, including the extraction of teeth, is war-

ranted in the presence of this infection. The man in general practice must not overlook the fact that these are always mixed infections, that a persistence of toxic symptoms, high temperature, pulse, blood count, or an ascending blood count may mean involvement of the sinuses and mastoids or a cellulitis, and eventual surgical intervention. In other words, chemotherapy is not a cure-all. Common sense and a little surgery mix well in these cases. The postponement of opening an acute abdomen until a hemolytic streptococcus throat is brought under control, will prevent many surgical disasters.

Chronic Streptococcus Throat Infections. If repeated courses of treatment with sulfanilamide fail, the use of a mixed antigen is indicated, and will often be of great value. Conversely, in cases where serum has failed, sulfanilamide has solved the problem. As important as the above, however, is removal of infected lymphoid tissue in the throat; even, as in one of my cases, removing the lateral bands, and building up the general resistance of the patient.

Scarlet Fever. It is difficult to discuss the therapeutic value of scarletinal antitoxin, largely, because of the great differences of opinion concerning it. The brilliant work of Banks² (one death in 1,204 patients treated with antitoxin, a complication rate of 4.2 per cent) is contrasted by Toomey and Dolch,² who state that serum disease is often more severe than the scarlet fever since it occurs at the present time. There is little in the literature to suggest the use of prontosil or sulfanilamide; Benn⁴ reported 256 patients successfully treated with sulfanilamide with a low incidence of complications. Neoprontosil and sulfanilamide have been surprisingly successful in a small series of severe cases. It was my privilege to observe one case complicated by a myocarditis, in which the patient suffered a complete breakdown of the renal and nervous systems, and yet made a remarkable recovery. Massive doses of sulfanilamide plus ten transfusions were used after convalescent serum failed. The facilities of our State Department of Health for the distribution of convalescent serum should be appreciated. There is abundant evidence that this serum is of great value both as a therapeutic agent and for passive immunization, and its use should be extended.

Erysipelas. At one time it was thought that this disease was caused by a specific type of hemolytic streptococcus which secreted a specific type of exotoxin which was different from erythrogenic toxin. We now know these concepts to be erroneous. As in the case of scarlet fever, there is no specific type of streptococcus or toxin associated with erysipelas, and for this reason the use of so-called anti-

bacterial streptococcus serum is seldom justified, except in severe toxemia and where there is reasonably direct evidence of a lack of antitoxin immunity. I see little to recommend the use of x-ray. Workers at the Children's Hospital in Boston report fifteen children under two years of age treated with sulfanilamide, with one death, in contrast to previous mortality rates of 30 to 50 per cent from erysipelas in infants. Carey⁵ reports a mortality rate of 20 per cent in children so treated.

Pneumonia and Empyema. Diagnosis of the infecting organism is of utmost importance. I wish to mention three cases, primarily because they were of the most severe type and all patients recovered, and also to emphasize the fact that complications must be handled as they appear, in much the same manner we have used in the past, not forgetting good old common sense. All had constant laboratory supervision.

A poorly nourished woman sixty-four years of age was brought to the hospital, practically unconscious, with involvement of both lungs. Temperature was 104.3 degrees, pulse 152. She was placed in an oxygen tent at once, glucose was administered, and after a diagnosis of hemolytic streptococcus, prontosil in five cubic centimeter doses was given every three hours. Diglugin was used to support the failing heart. The temperature reached normal in forty-eight hours. She remained in the tent four weeks. The kidney breakdown did not occur until the fourth day, but apparently responded to the prontosil and abundant glucose therapy. The dose of prontosil was maintained over a long period of time. Repeated sedimentation rates gave some assistance in varying the dose. This was kept within normal limits and seemed to be a fair indication of the patient's condition as checked by the clinical picture. This patient made a slow but complete recovery.

A high school boy fifteen years of age came in with the usual picture of bilateral pneumonia, delirium and very high temperature and pulse. Sulfanilamide was given, fifteen grains every four hours. The maximum dose in twenty-four hours was 85 grains, with an equal amount of soda. Temperature drop occurred in thirty-eight hours, with only slight cyanosis and practically no blood changes. However, on the tenth day he developed an embolus in his left leg, with a secondary rise in temperature, chills, etc. The sulfanilamide, which had been carried on in small doses, was immediately increased and temperature returned to normal in forty-eight hours.

The third case is that of a baby thirty-three months of age, weighing twenty pounds when brought to the hospital, after having been treated

at home for a streptococcus involvement of the left lung. Previous to hospitalization, the child had had twenty grains of neoprontosil a day for one week. Serum aspirated from this lung showed a mixed infection, but predominantly streptococci in nature. Prontosil was used following this aspiration until the aspirated fluid was practically free from streptococci. On the eighth day a thoracotomy was performed. Drainage was complete and the tube was removed on the seventh day, when the wound was allowed to close. Recovery was uneventful.

Progress in the above cases was observed by x-ray, and reticulogen was used instead of blood transfusion. I wish to emphasize the importance of not overlooking the fact that empyema, even with such startling results with chemotherapy, is still a surgical disease, and drainage, after the elimination of the streptococci factor, is indicated. I find little support in the literature for continued aspiration and introduction of the drug into the abscess cavity.

Puerperal Sepsis. Of utmost importance is prevention. Prenatal advice to the patient and family, and special care by the physician during the final weeks of pregnancy so that throat infections are not overlooked are important factors. I have seen a young woman who delivered spontaneously without medical aid dead in five days after delivery from puerperal sepsis. This infection may have been a direct contamination of the vulva by her own hands infected by the streptococci secretion from her throat and nose, a method often mentioned by English writers. In addition to the usual aseptic precautions, masks should be worn by everyone in the delivery room. All dust should be removed by damp mops and cloths. Routine use of sulfanilamide in doses of 20 to 40 grains a day, or neoprontosil, 40 grains a day, for the first three days in all cases where there are lacerations, or where the patient's resistance is depleted, is suggested by Ottenberg.⁶ Lactation has not been affected. The use of chemotherapy after infection is, of course, indicated and has given excellent results. Mortality rates have been reduced at least 60 per cent. Anaerobic streptococci (hemolytic and non-hemolytic) should not be overlooked in mild, low-grade, postpartum infections or in incomplete septic abortion. We have no specific for the treatment of anaerobic infections and must rely especially on blood transfusion which is also the accepted treatment for all serious puerperal infections. I find little support for the treatment of these infections by sera.

As in the case of puerperal sepsis, the use of these drugs as a preventive measure in lacerated

wounds, burns and compound fractures does no harm, and adds much to the patient's resistance. I have had startling results in the treatment of streptococcus infected burns and cellulitis resulting from alveolar abscesses, yet moist dressings and incision of local points must not be overlooked. The Royal Army Medical Corps has been ordered to use sulfanilamide as a preventive measure. Carey,⁶ Bollinger and Effler⁷ and a host of others report excellent results in the treatment of septicemia. I have seen one patient who received 300 grains of sulfanilamide a day and with some 20 transfusions, make a satisfactory recovery.

The literature abounds with spectacular cures of meningitis and mastoiditis. Chemotherapy not only prevents mastoiditis, but shortens the postoperative period. However, the indiscriminate use of these drugs may obscure the diagnosis or result in a masked or latent clinical picture of mastoid involvement.

I find little support for the use of chemotherapy in rheumatic fever or chronic rheumatic joints. Here, mixed antigens or autogenous vaccines are preferred. Personally, I have had gratifying results in both acute and chronic streptococcus arthritis with Kreuger serum plus the usual rest and heat.

Corry⁸ reports a mortality rate of 11.5 per cent in general streptococcus peritonitis treated by drainage and sulfanilamide. In cases of streptococcus colitis, excellent results have been achieved by the use of neoprontosil. Treatment was not given until daily examinations of feces established the presence of an overwhelming number of streptococci. (These infections were secondary to throat infections.)

SUMMARY

1. Hemolytic streptococcus infections cause a high percentage of illness in any community.
2. Chemotherapy should be used as a preventive agent in obstetrics, war wounds, burns, et cetera, and should be tried in chronic infections where there is a reasonable possibility of hemolytic streptococcus being the predominating factor.
3. The indiscriminate use of these drugs is discouraged.
4. Specific types of sera have, as yet, not been developed, but offer the hope of valuable therapeutic agents for the future.
5. Chemotherapy, which has produced remarkable results, plus the biologic agents now available (especially convalescent serum) may be expected to reduce appreciably the need for operative procedure for control of these infections, and, even after surgical incision, to contribute essentially to

reduction of the postoperative mortality rates and period of convalescence.

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Discussion

Dr. Roman J. Fisch, Le Mars: The one thing which I would like to stress in Dr. Bernard's paper is the fact that we must bear in mind that 27 different specific serologic types of hemolytic streptococci have been isolated. As we read the literature we become more and more aware of the fact that so-called streptococcal infections are not caused by one specific organism. This I believe we are all more or less prone to forget and when we see a streptococcal infection we are inclined to visualize organisms in chain-like formation, staining gram-positive, as we remember having seen pure specimens under the microscope. It is true that the introduction of the sulfanilamide group has simplified the treatment of streptococcal infections but it has no doubt been the experience of every one that on various occasions patients who are suffering from such infections will not respond to neoprontosil or sulfanilamide. We are at a loss to explain this. It has been more or less generally accepted that some types of pneumococci respond poorly to sulfapyridine and it is reasonable to assume that where we do not get a response to sulfanilamide we are dealing with a type of streptococcus which is refractory to the drug.

Today streptococcal infections and sulfanilamide are firmly correlated in our minds as a specific disease and a specific treatment and when response to the drug is not forthcoming we are at a loss as to what to do. It should always be borne in mind that the streptococcus is a very destructive invading organism so far as the human body is concerned. In like manner the therapeutic weapon used to combat its deleterious effects is a dangerous and powerful agent. In treating streptococcal infections the patient should not merely become the battle field for these two formidable enemies. So great is our enthusiasm for sulfanilamide that we are likely to forget many of the other therapeutic measures which were so successfully employed before the advent of this drug. Adequate supportive treatment in the form of rest, good elimination, wholesome diet, fluids, relief of pain, fresh air and blood transfusions should not be forgotten or neglected in the treatment of

streptococcal infections. Surgery in the great majority of instances has no place in the treatment. Certainly it should not be resorted to in the early acute stage of the disease. It is not the nature of a streptococcal infection to establish a definite walled-off abscess. The process of resolution and healing in these infections is slow and too often we are tempted to improve drainage by surgical interference in an indurated, reddened, firm, swollen area of cellulitis which is exuding thin serous pus, when our common sense tells us to leave it alone. Frequently we discover that incision did nothing toward improving drainage but instead caused spreading of a cellulitis which was more or less under control.

At present the accepted treatment for streptococcal infections should be sulfanilamide, adequate supportive treatment, including blood transfusions when indicated, and conservatism.

THE USE AND ABUSE OF DIGITALIS*

GEORGE B. CROW, M.D., Burlington

The flowering plant commonly known as the foxglove was given the name digitalis by Fuchsius, nearly 400 years ago, because of the resemblance of the blossoms to the fingers of a glove. Early physicians employed it in such various disorders as epilepsy, scrofula, caries and chronic leg ulcers. It remained for William Withering¹, in 1785, to publish the first clear indications for the use of digitalis and the method of its administration. His attention was called to it ten years before by reports that "an old woman in Shropshire was curing dropsy by the use of an old family receipt." On investigation he found that old mother Hutton's "receipt" consisted of an infusion made from a mixture of twenty-odd herbs. The "cure" was supposed to result from the vomiting and purging incident to the treatment.

Withering was not only a keenly observant physician but a botanist of note. He at once decided that the foxglove was the active herb in the mixture, and began a systematic study of the plant and its effects. "I soon found the foxglove to be a very powerful diuretic; but then and for a considerable period afterwards, I gave it in doses very much too large, and urged its continuance; for misled by reasoning from the effects of the squill, which generally acts best upon the kidneys when it excites nausea, I wished to produce the same effect by the foxglove. Further experience convinced me that the diuretic effects of this medicine do not at all depend upon its exciting a nausea or vomiting; but, on the contrary, that though the increased secretion of urine will frequently suc-

ceed to, or exist along with these circumstances, yet they are so far from being friendly or necessary, that I have often known the discharge of urine checked, when the doses have been imprudently urged so as to occasion sickness. If the medicine purges it is almost certain to fail in its desired effects."

It must be remembered that in Withering's day little was known as to the causes of dropsy. He at first used the drug in all dropsical states, including "ovarian dropsy" and hydrocephalus; also in some of the diseases, such as tuberculosis and epilepsy, for which it had originally been recommended. He treated many cases of ascites which from his description we would now classify as alcoholic cirrhosis of the liver. The important fact is that he kept notes on and reported every case in which he used the drug. After careful observation he abandoned its use in the type of cases mentioned above and his final descriptions of the symptoms calling for the drug indicate clearly that he was describing what we now call congestive heart failure.

Although Withering continued to believe that the primary effect of digitalis was diuretic, he did note that it "sometimes powerfully affects the motion of the heart." Withering not only enumerated the important symptoms calling for digitalis administration but he worked out the best preparation, the dosage, satisfactory methods of administration and graphically described the toxic effects with rules to avoid them. The use of the drug rapidly spread; but, as so often happens, many physicians began using the drug without learning the rules laid down by the Master. Withering published his monograph as a protest against the abuses which he feared would soon discredit this valuable drug. His fears were well founded. His great classic was soon forgotten, and fifty years later digitalis was mentioned chiefly as a remedy in tuberculosis.

During the next twenty-five years interest in the drug as a heart remedy slowly developed. In 1866, Austin Flint² said, "Digitalis is a valuable remedy, appearing to relieve irregularity of the heart's action without diminishing, but, on the contrary, increasing the power of the ventricular contractions. The remedy is, therefore, particularly suited to cases in which the action of the heart is rendered irregular and feeble by dilatation, and it is not suited to cases in which the symptoms and signs denote hypertrophy." In Flint's time and for many years afterward, as the older physicians here well remember, attention was focused almost entirely on valvular defects. Since that time the growing interest in digitalis has followed, quite

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naturally, our growing knowledge of heart disease.

Schmiedeberg, Cushny and Brunton laid the foundation for pharmacologic knowledge of digitalis. From 1865, when he wrote his thesis "On Digitalis,"³ to 1908, when he published his "Lectures on the Therapeutics of the Circulation,"⁴ Brunton continually emphasized that digitalis increased the contractile power of the heart, including the diseased heart in man. His attention, like that of his contemporaries, was focused, however, on the failing heart in valvular disease. Later animal experimenters failed to corroborate Brunton's findings, minimized or disavowed the beneficial effects of digitalis and threw the whole subject into confusion; but, as Gilchrist⁵ says, "It is fortunate that digitalis owes its reputation to clinical observation, for had it been a product of the laboratory it would almost certainly have been discarded as useless." Recently experimental results more nearly approximate clinical conceptions.

At the turn of the century some clinical consideration was given to the action of the drug on heart muscle, but unfortunately the writings of Mackenzie⁶ diverted attention to its effect on heart rate. Mackenzie showed that the effect of digitalis in reducing ventricular rate is manifested principally in that group of cases characterized by fibrillation of the auricles. The clinical results here are, of course, very striking, and as Mackenzie's ideas were seconded by Sir Thomas Lewis⁷, the notion soon became general that tachycardia due to auricular fibrillation was the only indication for the drug. Luten⁸ reminds us that "So great was the emphasis placed upon auricular fibrillation that this disorder itself, rather than the tachycardia produced by it, was soon regarded by many physicians as the prime indication for digitalis, such hearts as exhibited the arrhythmias being regarded as in some way peculiarly susceptible to the favorable influence of the drug, whether or not the ventricular rates were fast, and with little regard to the functional efficiency of the heart." Thanks to a host of students of heart disease, most of them American (Christian, Cohn, Eggleston, Gold and DeGraff, Levine, Luten, Pratt, White, Wiggers, etc.), a much broader and firmer basis for digitalis therapy is now generally acknowledged.

So complex are the physiologic factors in the circulation, it is not surprising that in studying a drug which may affect the heart in several ways at one and the same time, physicians have taken many detours and lost themselves in many blind alleys. There are still many disputed details. Stated somewhat dogmatically, because of time limit, the following conclusions, however, appear to be fairly well established.

Digitalis increases the contractile power of heart muscle. In the failing heart the ventricular output is increased. More work is accomplished with less energy. By some direct action on the myocardium, cardiac efficiency in heart failure, is improved. This is by far the most important effect of digitalis. The effect on the pacemaker is still under discussion. Most authors agree that the pacemaker is depressed, partly as a result of vagal action. Those who disagree argue that most of the slowing, in cases with regular rhythm, is a result of improved circulation rather than a partial cause for it. Digitalis depresses conduction, particularly through the auriculoventricular bundle. Under proper dosage this depression is not great; but in auricular fibrillation it is enough to reduce the number of impulses reaching the ventricle, and accounts for the unusually favorable results on rapidly fibrillating hearts. Electrocardiographic changes under non-toxic doses are usually unimportant as a therapeutic guide. If a patient when first seen has taken an unknown amount of the drug, the electrocardiogram may help determine the degree of digitalization present. Occasionally the changes in the T wave and R-T segment may be confused with those of coronary thrombosis. Rarely toxic effects will appear in the electrocardiogram before toxic symptoms occur. This will be referred to later. Digitalis, when properly administered, produces no important changes in blood pressure except those incident to improved circulation. If the blood pressure has fallen because of a failing pump it may rise to, but not above, the level existing before the heart became incompetent. All agree that digitalis increases the urinary output in the water-logged patient with heart disease. Although the mechanics involved are complex, most authors agree that the results can be attributed to improved circulation through the kidneys. When edema is a chief presenting sign the urinary output is a fair measure of digitalis efficiency.

Withering's description of the toxic effects is so clear cut that I venture to quote him again: "The foxglove when given in very large and quickly repeated doses, occasions sickness, vomiting, purging, giddiness, confused vision, objects appearing green or yellow; increased secretion of urine, with frequent motions to part with it, and sometimes inability to retain it; slow pulse, even as slow as 35 in a minute, cold sweats, convulsions, syncope, death. When given in a less violent manner, it produces most of these effects in a lower degree; and it is curious to observe that the sickness, with a certain dose of the medicine, does not take place for many hours after its exhibition has

been discontinued; that the flow of urine will often precede, sometimes accompany, frequently follow the sickness at the distance of some days, and not unfrequently be checked by it. The sickness thus excited, is extremely different from that occasioned by any other medicine; it is peculiarly distressing to the patient; it ceases, it recurs again as violent as before; and thus it will recur for three or four days, at distant and more distant intervals."

The more violent symptoms are now rarely seen. Anorexia, nausea and vomiting, are frequently due to portal stasis associated with right heart failure. The physician must decide whether the gastric symptoms are the result of stasis or whether they are being produced or aggravated by digitalis. If the patient has had no recent intake of the drug and the gastric symptoms were present before it was started, the drug may safely be pushed to its physiologic effects. If a mild gastric upset becomes aggravated during digitalization, caution is indicated. In this instance an electrocardiogram is helpful. Disturbances of rhythm may accompany or even precede the usual toxic symptoms. Mild degrees of delayed auriculoventricular conduction occur, as shown by a prolongation of the P-R interval in the electrocardiogram. The appearance of any degree of heart block or of coupled beats during digitalis therapy is a stop signal. Auricular fibrillation induced by digitalis has been reported⁹ in children with rheumatic hearts. Ventricular tachycardia, a grave danger signal, may be overlooked unless the heart rate rather than the pulse rate is watched, because it is likely to be associated with pulse deficit. If it is not recognized and if appropriate measures are not taken at once the end results will be epileptiform attacks, syncope and sudden death. It is believed that in cases of fatal poisoning the ventricular tachycardia progresses to ventricular fibrillation. These arrhythmias are more likely to precede the usual symptoms of intoxication in elderly patients with advanced myocardial damage.

INDICATIONS

There is now general agreement that congestive heart failure, whether mild or severe, is the all-important indication for digitalis. Digitalis is not given primarily to depress the pacemaker, or to produce auriculoventricular block or to reduce the size of the heart. These results are incidental. The primary object is to relieve the symptoms of myocardial insufficiency. When such symptoms are present, as manifested by dyspnea, edema, increased venous pressure, with congestion of the hepatic, pulmonary or peripheral circulation, the

drug should be given. In considering the need for the institution of digitalis therapy, little consideration is given to blood pressure, valvular defects, the heart rate or rhythm. It must be recognized, however, that these factors, insofar as they are indicative of the etiology or degree of myocardial damage present, may suggest the response that can be expected.

Tachycardia in itself is no indication for digitalis; neither does a slow pulse forbid its institution. As mentioned before, the development of certain arrhythmias during treatment calls for discontinuance of the drug; but the presence of premature contractions or even of heart block before treatment is not a contraindication. It does, however, call for extra caution. In the first case the development of arrhythmias would be considered evidence of digitalis intoxication; in the second event they are merely evidence of pre-existing heart damage. Indeed, one form of arrhythmia, auricular fibrillation, if accompanied by a rapid ventricular rate and evidence of heart failure, is likely to show the most brilliant response. Digitalis does not stop auricular fibrillation; on the contrary it probably contributes to it. However, the resultant slowing from depression of the auriculoventricular bundle, added to the usual effect on ventricular muscle, makes for the good showing in this syndrome.

What stage of cardiac incapacity calls for digitalis? We see many cases without frank congestion but with definite evidence of mild decrease in cardiac function. Moderate breathlessness with a little ankle edema may respond to moderate limitation of activity. If it does not, digitalis should be given. Christian¹⁰ has also shown that in hypertension with cardiac hypertrophy the symptoms of breathlessness, sleeplessness and fatigue may be markedly relieved by digitalis. He also believes that the early and prolonged use of the drug in such cases may prevent or postpone the onset of congestive heart failure. It is in this hypertensive type of heart disease that nocturnal dyspnea is so often a troublesome symptom. Here, digitalis in moderate dosage, especially if combined with one of the xanthine group, may prevent the attacks.

Thyrotoxicosis. Here, as elsewhere, myocardial failure rather than pulse rate, calls for digitalis. The results will be disappointing, however, unless appropriate steps are also taken to control the underlying condition. Plummer¹¹ proved that routine administration of digitalis in hyperthyroid disease increased the mortality rate.

Disordered Mechanisms. It has been stated before that arrhythmias, even complete heart block if associated with heart failure, are not contraindica-

tions to the institution of the drug. In auricular fibrillation the therapeutic response is more likely to coincide with the fall in heart rate; but here, as in normal rhythm, a satisfactory response may occur without marked slowing.

Coronary Thrombosis. Some writers consider this a contraindication. If congestive failure occurs rather late after the occlusion, say, three or four weeks, the drug should be given. If such failure occurs early it may be given but results are usually poor.

Arteriosclerosis. In this class the response is less predictable, due, perhaps, to uncertain coronary flow. In old people massive doses should not be given. Smith¹² has recently emphasized the incidence of digitalis intoxication in this group. The symptoms include headache, depression or excitement, impaired memory, confusion, delirium and convulsions. Other causes for these symptoms should, of course, be excluded.

TREATMENT

The effects of digitalis are complicated. There is no good reason to increase the complications by the use of a multiplicity of preparations, for, as Withering said, "the more we multiply the forms of any medicine, the longer we shall be in ascertaining its real dose." For this reason the glucosides are not recommended. In addition, they cost more. Stroud and Vander Veer,¹³ after a six-year study of the clinical efficacy of various digitalis preparations, concluded that none was superior to the powdered leaves.

Dosage. Most preparations now on the market contain one cat unit for each 1.5 grains. On this basis 18 to 30 grains are required for rapid or moderately rapid digitalization. The rapid method, with its exact calculation of dosage in relation to body weight, popularized by Eggleston,¹⁴ is now seldom used. In extreme cases rapid effect may be advisable, but the relation of the dose to body weight need not be exact. To the definitely edematous bed patient the administration of 18 to 20 grains in a period of three days is nearly always safe. Half of the amount can be given during the first day and the remainder divided on the two following days. If the desired effect has not then been reached, 10 or 12 grains may be given during the next two days. Digitalis exerts a prolonged effect. By limiting the number of doses to two, or at most three a day, toxic effects are more readily anticipated. It should not be necessary to stress the need for close observation during the period of digitalization. For the ambulatory or semi-ambulatory patient, the digitalizing dose may be spread over a longer period. Rapid digitalization

should not be attempted if an unknown amount has recently been taken. Extensive edema with ascites should be preceded or accompanied by salyrgan or tapping or by both. If powerful diuretics are given after full digitalization, the edema and ascitic fluid, which have been shown to contain digitalis, are rapidly thrown back into the circulation and poisoning may result.

The Maintenance Dose. This has not received the attention it deserves. Patients who need digitalis at all will likely need it intermittently or continuously throughout life. The determination of the maintenance dose, therefore, becomes a matter of the first importance. This determination cannot be made by rule of thumb but must be ascertained for each patient by the method of trial and error. The average patient eliminates 1.5 grains (one cat unit) per day. This is the average maintenance dose; but individuals vary greatly in their requirements. This is due to several factors: the present method of standardization is not exact (error up to 20 per cent); disturbed physiology in the patient produces an uncertain rate and degree of absorption as well as utilization after absorption. A few patients will require twice the average dose per day, others half of the average dose. What yardstick can be used to measure satisfactory maintenance? Intoxication should, of course, be avoided. Pulse rate alone is a poor guide. If possible the patient should be kept free from objective signs and subjective symptoms of myocardial insufficiency. Intelligent patients, after proper coaching, can determine the amount that keeps them most comfortable. The maintenance dose, once established, may have to be altered to meet changing pathology within or unavoidable external strains on the heart.

Methods of Administration. The oral route is preferable and can nearly always be used. In the presence of persistent vomiting due to portal stasis, the tincture can be given per rectum, diluted in three or four ounces of water. To avoid local irritation the daily requirement should be given at one dose. Intravenous administration is rarely indicated. Severe acute left ventricular failure, immediately threatening life, would most often justify this procedure. If the patient is already under digitalis effect, however, an intravenous dose may stop the heart in systole.

CONTRAINDICATIONS

In general it may be said that if the indications are well defined there are no contraindications. During the past several years digitalis has been rather widely used in the treatment of shock; it has been given preoperatively with the hope of

preventing shock; and for a long time it was given during the course of acute infections, particularly pneumonia, to prevent heart failure. We now know that shock is not a result of heart failure but is a manifestation of peripheral circulatory collapse, which calls for a totally different therapeutic approach. Regarding pneumonia, the committee¹⁵ for the study of digitalis in this disease in New York City, reported its conclusions, based on observation of its use in 834 cases, as follows: patients receiving digitalis showed a higher mortality rate than the control group; the highest mortality occurred in those receiving the largest amount of the drug, irrespective of whether or not they showed toxic digitalis signs. Fortunately, the introduction of specific therapy and the growing use of oxygen have greatly minimized the danger of circulatory failure in pneumonia.

SUMMARY

1. The primary indication for digitalis relates to its effect on failing heart muscle.
2. Rate, rhythm and valvular defects are distinctly secondary.
3. Toxicity, as shown by nausea and marked slowing of the pulse, should be avoided.
4. Toxic effects are more frequent and more dangerous in the aged and in the presence of gross myocardial damage.
5. The best preparation is the powdered leaf, given as tablets, pills or capsules.
6. The digitalizing dose is 20 to 30 grains and should be spread over a period of three to five days.
7. The maintenance dose varies greatly, but the average is 1.5 grains.
8. Oral administration is nearly always satisfactory.
9. There are no contraindications when the indications are well defined.
10. Digitalis is not indicated in shock, nor in the acute infections, unless these states are associated with pre-existing heart disease.

As Wenckebach¹⁶ has said, "What helps the individual patient most is to be taken as the best treatment for him, whether or not it is possible to analyze its action in every detail. Digitalis treatment is one of the most important and serious duties of the general physician; it demands a great deal of skill, power of observation, keen interest and experience. A long life is too short to learn enough about this wonderful drug."

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Discussion

Dr. A. G. Felter, Van Meter: I am sure we have had in Dr. Crow's paper today a remarkably accurate and comprehensive treatment of the subject of digitalis, its use and abuse. While I may offer a few personal observations and suggest sundry minor details, I feel that the subject has been treated very well indeed.

I am glad we are now agreed that there are only two well-established contraindications; namely, the Stokes-Adams syndrome and an idiosyncrasy to digitalis. Fortunately both of these are rare.

Under indications I should like to emphasize the therapeutic test. Many times we see an elderly person, a chronic hypertensive case, or an emphysematous patient in whom the diagnosis of congestive failure is uncertain. In other words, we do not know positively the exact status of the cardiac reserve. We are told that nine-tenths of the cardiac reserve is used up before signs and symptoms of congestive failure appear. How are we to know how close we are to this ultimate limit of cardiac reserve? I have many times used digitalis on such cases for a short time as a therapeutic test and not so seldom have the results obtained confirmed our suspicion of early congestive failure. I believe that there are times when a tonic dose of digitalis may help the heart tone and postpone heart failure. Let us remember also that an auricular flutter may sometimes be converted into an auricular fibrillation by the use of digitalis.

Under toxic effects the essayist brought out a most excellent point in that arrhythmia developing during active use of digitalis is probably due to digitalis toxicity. In enumerating the toxic effects of digitalis I believe I would put malaise as the first and a very early toxic effect of the drug. Many times this and the subjective feeling of an intensification of the heart beat are the earliest toxic effects noted. Arrhythmias may precede the usual early toxic symptoms not only in the aged with advanced heart disease but

occasionally in anyone with advanced heart disease. Again I have noticed that cerebral manifestations seem likely to occur on small and otherwise non-toxic doses of the drug if administered over a long period of time. These are problematical since they usually occur in the senile or arteriosclerotic patient in whom one might, without the use of digitalis, have cerebral symptoms sooner or later.

In administering digitalis we must know if it has already been given recently. We must be aware of the fact that individual doses vary. The electrocardiogram may be of assistance in determining toxicity where the drug has been given for some time. Finally, it is remarkable how skilled these patients become in regulating their digitalis needs. In a large eastern clinic I was particularly surprised at the freedom given patients with chronic heart disease in fixing their daily doses after they had accustomed themselves to the use of the drug over a long period of time.

Again let me say that we have had a very interesting essay on a most important subject and Dr. Crow is to be congratulated upon the manner in which he has presented it.

Dr. John W. Thornton, Lansing: Digitalis has been the subject of such extensive study and experiment that much has been learned even though its action and uses are by no means simple. It is a drug of extremely great importance to the health and comfort of many patients and for this reason we occasionally review the subject and become more familiar with the latest knowledge of this drug. This has been very ably done by Dr. Crow today. There is no need to repeat his discussion of cardiac physiology and the mechanism of digitalis action. I would merely give added emphasis to three points; when to use digitalis, when not to use it and when to stop using it.

It has been said that the chief indication for digitalis is congestive heart failure. This is true in variable degrees in the different types of heart disease, such as rheumatic, hypertensive, etc. Results are more dramatic in certain cases of failure associated with disturbed rhythm, especially auricular fibrillation or flutter, but there is plenty of evidence, both clinical and experimental, to justify its use in cases with normal rhythm and possibly in some cases where one might say failure was impending rather than a fact. Digitalis is so effective in improving the circulation in heart failure and in slowing the rapid rate of the failing and especially of the fibrillating heart that there has been some tendency to use it in tachycardias, arrhythmias and cases of circulatory failure without proper evaluation of the cause of the condition. This has been true in certain infections, notably pneumonia, where digitalis has proved of very questionable value in either preventing or curing the peripheral vascular failure which occurs. Likewise efforts to slow the rapid heart of thyroid disease or of fever with this drug is usually disappointing if not actually harmful, especially if continued effort leads to excessive dosage and toxic results. In old people digitalis is often of great

value but it must be used with added caution since the margin between therapeutic and toxic results seems much smaller, just as with many other drugs. Its use in cases of angina pectoris, coronary sclerosis and coronary occlusion has been much discussed and is rarely indicated in the earlier stages of these conditions.

Even when given proper indications digitalis may produce toxic effects as well as the desired therapeutic results. Either may be good reason for decreasing the dosage or even stopping the drug entirely. Slowing of the heart, restoration of normal rhythm, relief of dyspnea, increased urinary output and removal of edema are some of the objectives of digitalis therapy and when achieved one may reduce the drug to maintenance dosage or even withdraw it completely. Excessive action is not rare since patients vary greatly in the amount needed to obtain or to maintain digitalization. Rules as to dosage are helpful but not an absolute standard whether based on age, weight, type of disease or any other known factor. While there is no regular order of appearance, gastro-intestinal symptoms are usually the earliest signs of toxic action with anorexia, nausea, vomiting and possibly diarrhea following. Visual disturbances may occur early as do mental symptoms, especially in older persons. Slowing of the heart rate is a normal or desired effect but rates falling below 60 are usually a warning of toxic action. Disturbed heart rhythm which appears during digitalization demands careful evaluation. There may be ectopic or coupled beats, delayed conduction with partial or even complete heart block and, less often, other arrhythmias. At times a ventricular rate which is persistently or increasingly fast may show a ventricular tachycardia of toxic nature which is serious because it is so different from the slowing usually expected.

Toxic symptoms, of course, demand withdrawal or at least definite reduction of dose. In treating cardiac disease with digitalis no rules of administration can replace careful clinical observation and accurate appraisal of symptoms and findings.

THE CAROTID SINUS*

ERMA A. SMITH, M.D., Ames

The carotid sinus consists of a slight dilatation of the common carotid artery at its bifurcation into the internal and external carotid arteries. The enlargement usually involves, as well, the commencement of the internal carotid artery. This sinus is seen, not only in healthy young adults but in young infants and is a perfectly normal structure. The wall of the sinus is thinner than that of the adjacent parts of the artery.

Sinus Nerve. Sensory receptors lie in the deeper parts of the adventitia of the sinus and are

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connected with large medullated nerve fibers which wind spirally through this layer of the artery. These sensory terminals appear to be well adapted to respond to changes in the internal pressure of the sinus. The afferent nerve from the sinus, the sinus nerve, joins the glossopharyngeal and connects with the cardiac and vasomotor centers. Reports by certain French physiologists¹, and many other more recent publications have shown the great importance of the carotid sinus in the control of circulation and respiration.

Sinus Reflexes. Pressure upon the sinus applied externally, in a manner to stimulate the sinus sensory receptors, slows the heart and lowers the blood pressure; at the same time respiration is slowed and depressed. Occlusion of the carotid artery or pressure below the sinus applied in a manner to reduce the pressure in the sinus increases the heart rate, raises the blood pressure and stimulates respiration. Thus the sinus nerves are of great importance in regulating the circulation to the brain. They function in bringing about the changes in heart rate and in blood pressure which accompany postural changes such as occur in arising from the recumbent to the sitting or standing positions. The importance of the sinus mechanisms in adjusting to reduced blood volume is evidenced by the fact that when the sinus and aortic nerves are cut a loss of one-tenth of the blood proves fatal while normally a loss of 30 to 40 per cent may be survived.

Carotid Sinus in Man. In people with normal cardiovascular systems, pressure upon the sinus externally through the tissues of the neck may elicit no response. However, in a certain percentage of cases a marked fall in the blood pressure, a slowed heart rate and deep respiration may easily be elicited. In hypertension and arteriosclerosis the sinus reflex is often highly sensitive. In about 75 per cent of such patients slight pressure on the sinus lowers the blood pressure and slows the heart rate. An attack of tachycardia may thus be temporarily relieved.

Hypersensitive Sinus. Attacks of dizziness, fainting, or even convulsions may occur from a hypersensitive sinus, emotions or slight pressure on the neck being the stimuli. Denervation of the sinus gives complete relief. Denervation is followed by an increased heart rate and hypertension, both of which are temporary.

CONCLUSIONS

The carotid sinus then is responsible for stabilizing the heart rate and blood pressure in normal conditions. It is sensitive to small changes in blood pressure and reflexly adjusts the vascular

mechanisms accordingly. The sinus may become hypersensitive in arteriosclerosis.

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THE FINLEY HOSPITAL CLINICO-PATHOLOGIC CONFERENCES

PRIMARY CARCINOMA OF THE URETER

A. B. NESLER, M.D., Dubuque

In the past primary carcinomas of the ureter have not been given serious consideration in the differential diagnosis of renal neoplasms because of their extreme rarity. The fact that more than two-thirds of the known cases have been reported in the last ten years indicates that this view is no longer tenable. The case to be discussed is an example of this interesting group of neoplasms which was thought to be a renal carcinoma until the necropsy studies were completed.

CASE REPORT

Chief Complaint: The patient, a white woman, seventy-one years of age, was admitted to Finley Hospital, May 28, 1940, with a complaint of "throbbing pain in the right side of the abdomen and a slight loss of weight."

Family History: The patient's mother died of old age at seventy-two and her father of "heart trouble" at sixty-eight years of age. One sister and one brother have diabetes but there is no history of cancer in the family. Two children are living but one son died of a "heart attack."

Past History: The patient had enjoyed good health until three months before admission. Her pregnancies and deliveries were uneventful. Her habits were good. The menopause occurred at forty-seven years of age, and uterine bleeding never recurred.

Present Illness: Two years before admission the patient noted bright blood in the urine but this gradually cleared up and had not troubled her for some time. For three months she had noted a throbbing pain on the right side of the abdomen which was increased by quick movements and which was gradually becoming more severe. She had lost some weight during the past three months. She had to get up twice each night to

urinate and had a bearing-down sensation in the lower abdomen.

Physical Examination: The patient was an obese white woman weighing 212 pounds, who seemed moderately ill. The ears were negative but there was marked deviation of the nasal septum to the left, resulting in poor ventilation. The pupils reacted sluggishly and averaged three millimeters in diameter. The eyesight was poor. Twelve teeth were lacking but the remainder were in fair condition. The thyroid gland and the cervical lymph nodes were not enlarged. The thorax was symmetrical and expansion was equal on each side. The breasts were pendulous but no masses could be felt; the nipples were normal. The abdominal fat was abundant. There was a palpable mass fifteen centimeters in diameter in the region of the appendix. This mass seemed smooth and was non-movable, but was tender on palpation. Aside from tenderness in the region of the gallbladder, the abdomen was otherwise negative. There were no enlarged inguinal nodes. The uterus was small and the adnexa were normal to palpation. The rectum was negative. The lower extremities presented numerous varicose veins. The palms of the hands were cool but moist. The reflexes were normal. The temperature was 99 degrees. The pulse was 104 and the respirations 20 per minute. The blood pressure was 160/90.

X-ray Examination: Retrograde and intravenous pyelograms were made. The left kidney and psoas muscle shadows were normal in appearance. The right kidney was displaced downward, larger than normal, irregular and poorly defined in its lower and medial portions, with poor visualization of the psoas shadow in this area. No excretion of dye occurred on the right side. A double kidney pelvis and upper ureter were seen on the left; otherwise the left kidney and ureter were negative. Retrograde pyelograms showed poor filling on the right where there was a marked hydronephrosis. The mid-portion of the ureter was dilated, irregular and mottled in appearance. (Fig. 1.) The appearance suggested a kidney tumor involving the ureter, possibly a carcinoma. The ureter was not displaced. Conclusions were: congenital anomaly of the left and probably of the right kidney; right hydronephrosis; and probably malignant tumor of the right kidney and ureter. Another x-ray examination of the chest showed no metastases, but there were evidences of a thickened left pleura and of chronic bronchitis.

Laboratory Examinations: The admission urine was loaded with red blood cells and contained 40 milligrams of albumin per 100 cubic

centimeters. The urine was alkaline and had a specific gravity of 1.010. Sugar was negative. Subsequent urine examinations were similar. The blood examinations showed 10,800 white cells, 4,200,000 red cells and 13 grams hemoglobin. The blood chemical studies were normal.

Provisional Clinical Diagnosis: Right renal tumor with hydronephrosis.

Course in Hospital: The temperature continued at normal or slightly below. The pulse varied between 70 and 80 for the most part but at irregular intervals rose to 90. Urination became urgent and at times painful. The pain in the abdominal



Fig. 1.

mass became more troublesome, requiring sedatives for relief. About the fifth day she became nauseated and on the eighth day vomiting began. The blood total nonprotein nitrogen rose to 98 milligrams per 100 cubic centimeters. Later she became drowsy and finally stuporous. The output of urine decreased to 360 cubic centimeters per twenty-four hours, and finally the clinical picture of uremia developed. Because of the vomiting liver metastases were suspected. Exploratory laparotomy had been considered but deemed inadvisable because of the patient's condition. She died on the twentieth day in the hospital.

Final Clinical Diagnosis: Right renal carcinoma with hydronephrosis; question of liver metastases; uremia.

Autopsy Abstract: The left kidney weighed 230 grams and had a double pelvis. It also showed moderate arteriosclerotic changes. The right kid-

ney was represented by a hydronephrotic sac attached to a rounded tumor mass which surrounded the ureter. The tumor could be easily separated from the lower pole of the kidney. The latter was lined by a smooth mucosa in the upper four centimeters, but just below it became thickened and nodular, merging with the main neoplasm which averaged eighteen centimeters in diameter. This was composed of silvery gray, translucent tissue which formed a moderately hard mass. On dissection the middle two-thirds of the ureter was involved (Fig. 2). The mass extended to-

GENERAL DISCUSSION

Incidence: In 1939 Foord and Ferrier¹ reported seven cases of primary carcinoma of the ureter and stated that they had found accounts of 137 others in the literature. That these tumors are being diagnosed more frequently is indicated by the fact that of the total 144 cases, 94 (65 per cent) have been reported since 1931 while only 50 (35 per cent) appeared in all previous medical records. In their discussion the authors state that the most common site for these tumors is the lower end of the ureter but that all degrees of involvement from small, localized lesions to massive involvement of long segments have been described. They classify the neoplasm into two main groups, papillary or solid carcinomas. The papillary group is subdivided into first, single, pedunculated papilloma often appearing benign; second, a single, pedunculated solid-appearing carcinoma which distends and blocks the lumen; and third, the diffuse, papillary carcinoma showing multiple growths often extending the entire length of the ureter. The solid carcinoma begins as a localized, diffuse thickening of the wall, but commonly grows so as markedly to thicken the wall and involve its entire circumference. Because of its invasiveness, the tumor spreads for considerable distances in the wall of the ureter and often into neighboring tissues as in our case. Microscopically, histologic patterns and degrees of malignancy resemble those that would be expected in an equal series of cancers of the bladder. Metastases may occur in regional or distant lymph nodes as well as in the liver, lungs, kidney and bone.

Age: The age corresponds to that for other forms of cancer. Thus in their review of the literature Foord and Ferrier found the youngest patient to be twenty-two and the oldest eighty-nine years of age. There were three in the twenties, seven in the thirties, twenty-six in the forties, thirty-eight in the fifties, forty-four in the sixties, eighteen in the seventies and three in the eighties.

Symptoms: The three most prominent symptoms in the order of frequency are hematuria, pain and the presence of a mass. As in other forms of renal neoplasms, the occurrence of one or more of the above symptoms demands a complete study of the urinary tract by cystoscopic examination and intravenous and retrograde urograms until an exact diagnosis is made.

Treatment: All authorities agree that the treatment of choice is early surgical extirpation which means nephrectomy and ureterectomy. With the papillary forms of the tumor it is necessary to remove the intramural part of the ureter, although



Fig. 2.

ward the midline and had forced the peritoneum forward. It had invaded the right iliopsoas muscle and metastases were found in the periaortic lymph nodes. No visceral metastases were found. The other significant findings were chronic cholecystitis and cholelithiasis, bilateral fibrous pleurisy, adenomas of each adrenal gland, marked obesity and moderate arteriosclerosis. Microscopically, the neoplasm was composed of slightly differentiated epithelial cells in a moderate connective tissue and blood vessel stroma. The epithelial cells strongly resembled those of the ureteral mucosa, were rich in chromatin and showed numerous mitotic figures.*

*Sections of the tumor were graciously studied by Dr. Foord and in his opinion the cells originated from the ureteral mucosa.

this is not considered essential with a single solid cancer.

Prognosis: The prognosis is dubious because of the late discovery of the tumors and inadequate surgical removal. However, a few cases in which early diagnosis was made and adequate surgical extirpation carried out have been reported as surviving eight or more years. As in all forms of cancer, greater efforts must be made to make earlier diagnoses. This can be accomplished when both the lay public and the medical profession realizes the significance of hematuria and pain in the kidney region. It would be interesting indeed to know what the outcome in our case would have been if the patient had presented herself at the onset of the hematuria, two years before her final illness.

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NAVY ANNOUNCES OPENINGS IN MEDICAL CORPS

According to a recent announcement the Medical Corps of the Navy is being increased in strength proportionate with the expanding Navy and Marine Corps. Service for medical officers is active professionally and attractive in the shore duty, sea and foreign shore station assignments. In the normal rotation of assignments every practicable consideration is given the officer's preference for the type of duty he desires. The Naval Medical School at the Naval Medical Center, Washington, D. C., offers a course of postgraduate instruction and training in those branches of medicine which apply particularly to the naval service. Medical officers receive the same pay and allowances as other officers of the Navy in corresponding ranks and the equivalent amount of service.

Examinations for appointments as commissioned officers in the medical department of the Navy will be held January 6 to 9, 1941. The appointments will be for assistant surgeon, effective approximately two months from date of examination, and for acting assistant surgeon, effective July 1, 1941. Applicants for appointments as assistant surgeon must be citizens of the United States between the ages of twenty-one and thirty-one years, graduates of Class "A" medical schools and have completed one year of interne training in an accredited hospital. Applicants for acting assistant surgeon are not required to submit evidence of previous interne training, and are appointed for a period of eighteen months during which time they serve as internes in the larger naval hospitals. After completion of this year of service, they are eligible for examination for appointment as assistant surgeons. Requests for authorization to appear for these examinations should be submitted to the Bureau of Medicine and Surgery, Navy Department, Washington,

D. C., in sufficient time to permit the authorization to reach the applicant prior to December 30, 1940.

It has also been announced that appointments are being made in the Medical Corps, United States Naval Reserve, of male citizens of the United States, graduates of Class "A" medical schools, who are under fifty years of age and who meet the physical and professional requirements. Applications for these appointments should be addressed to the Commandant of the Ninth Naval District, Great Lakes, Illinois, who will upon request furnish complete information regarding vacancies in ranks of officers of the Medical Corps, United States Naval Reserve in the district.

ANNUAL FRACTURE CLINIC

The fourth annual "fracture day" sponsored by the State Fracture Committee of the Iowa State Medical Society is scheduled to be held Thursday, November 14, at the Montrose Hotel in Cedar Rapids. The session will be held in conjunction with the Linn County Medical Society meeting, and will begin at 1:30 p. m. and conclude with an address by Linn County's guest, Dr. Donald Guthrie of Sayre, Pennsylvania on "Thyroid Disease".

The afternoon program is to be devoted exclusively to one subject, "Fractures of the Spine", presented by Dr. George L. Apfelbach, one of the heads of the fracture service at Cook County Hospital, Chicago. However, as the following program shows, all the related subjects of the main topic are to be covered, and time will be allowed for informal discussion by anyone present. It is the hope of the Fracture Committee that by these means physicians may secure help on any individual problems.

The Linn County Medical Society and the Fracture Committee are anxious to have a large attendance at this meeting, and cordially invite all interested physicians in the state to come to the session. The meeting will conclude early enough so that those wishing to drive home may do so.

Donald C. Conzett, M.D., Chairman
Iowa State Fracture Committee

Program

Symposium: Fractures of the Spine

Dr. George L. Apfelbach, Chicago

Five minute discussions:

Differential Diagnosis from Old Injuries

Dr. Arthur Steindler, Iowa City

Differential Diagnosis from Congenital Anomalies

Dr. Arthur W. Erskine, Cedar Rapids

Associated Ileus

Dr. Frank R. Peterson, Iowa City

Treatment of Fractures of Transverse Processes

Dr. Douglas N. Gibson, Des Moines

Early and Late Neurologic Findings

Dr. Clarence E. Van Epps, Iowa City

Transportation

Dr. Robert M. Wray, Cedar Rapids

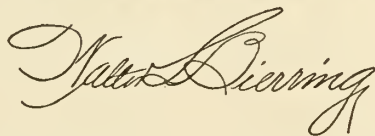
Compensation Problems

Dr. Lewis M. Overton, Des Moines

Traumatic Neuroses

Dr. Frank A. Ely, Des Moines

STATE DEPARTMENT OF HEALTH



THE AMERICAN PUBLIC HEALTH ASSOCIATION MEETS IN DETROIT

Attendance.

The sixty-ninth Annual Meeting of the American Public Health Association was held in Detroit, October 8 to 11, 1940. More than 3,000 persons registered for attendance. Representatives from Iowa included several medical directors from district or county health services, city physicians, public health and visiting nurses, public health engineers, laboratory directors and student health physicians.

Association Sections.

The meeting comprised the following ten sections: Health Officers, Laboratory, Vital Statistics, Maternal and Child Health, Epidemiology, Engineering, Industrial Hygiene, Food and Nutrition, Public Health Education and Public Health Nursing.

General and Joint Sessions.

In addition to the separate sectional meetings, there were sessions in which two or more sections, such as the Engineering and Industrial Hygiene Sections, or the Laboratory, Food and Nutrition and Epidemiology Sections, met together. There were also four general sessions; one of these considered "The Control of Venereal Diseases in a National Defense Program", another, "Communicable Disease Control under Wartime Conditions." The following paragraphs deal with material from several of the many papers which comprised some of the sessions.

Pneumococcus Typing And Chemotherapy.

Colin M. MacLeod, M.D., Hospital of the Rockefeller Institute for Medical Research, New York, presented a paper with the title "The Bacteriological Diagnosis of Pneumonia in Relation to Chemotherapy." Bacteriologic diagnosis, according to MacLeod, is of immediate importance from the standpoint of therapy. With the advent of sulfapyridine, the tendency for a while was to

discard type-specific antipneumococcic serum. "Opinion is back now to the use of serum and drug in proper relationship." Discussing the bacteriostatic effect of sulfapyridine, MacLeod referred to the effect of the drug in protecting mice inoculated with pneumococcus. Mice survived infection when the drug was administered for a period of three days, but died when it was withheld after the first or second day. Mice cannot readily be immunized against Type III pneumococcus. Combined treatment with drug and serum was said by MacLeod to be of special importance in the treatment of patients with Type III pneumonia. With use of the drug alone, the mortality rate in a series of Type III cases, was 17 per cent; among patients receiving combined treatment, the mortality rate was four per cent. Combined treatment was recommended for other types of pneumococcus pneumonia, in the presence of severe illness or of complicating bacteremia. Emphasis was placed on the value and significance of blood culture study and findings. With employment of the drug alone, the mortality rate was 23 per cent in a series of bacteremic cases, and 4.5 per cent in patients who failed to show bacteremia. Early sputum examination and pneumococcus type determination are essential if the drug is to be supplemented with serum. Serum is indicated for patients when the pneumococcus is sulfapyridine fast. Fastness may develop during treatment. Organisms which are "drug fast" are still fully susceptible to serum. Drug fastness tends to persist. When the pneumococcus is fast to sulfapyridine, the organism is also fast to sulfathiazole.

Cotton Rats and White Mice in Study of Poliomyelitis.

As part of a symposium on poliomyelitis, Charles Armstrong, M.D., Surgeon, United States Public Health Service, presented some results of experiments recently carried out with cotton rats and white mice. The Lansing strain of virus isolated from the bulbar type of poliomye-

litis, has been used by Armstrong and his associates. White mice are susceptible to the Lansing strain, following adaptation of the virus in the cotton rat. After an incubation period, usually from three to ten days, mice develop paralysis of one or more legs and may die in twelve to twenty-four hours from respiratory failure. Armstrong stated that both cotton rats and mice are satisfactory for testing human serum to determine whether members of a population group are immune, partly immune or non-immune against poliomyelitis. The discovery that the cotton rat and white mice have become available for the study of this disease permits investigation heretofore impossible with monkeys.

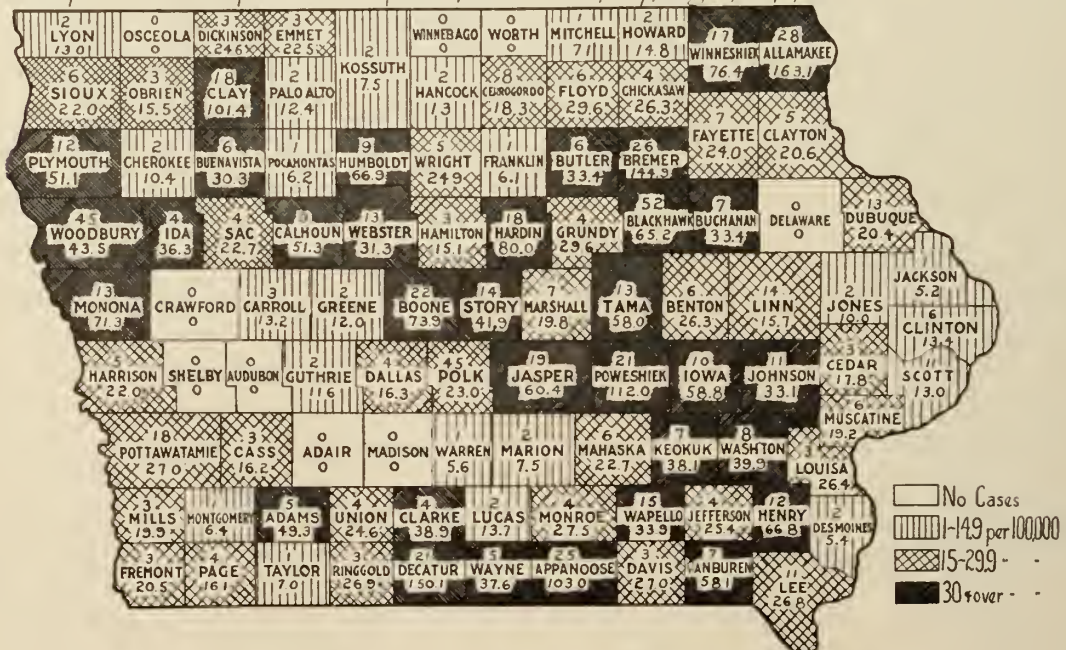
Influenza.

"The Present Status of Knowledge Concerning Influenza" was presented by Frank R. Horsfall, Jr., M.D., International Health Division, the Rockefeller Foundation, New York. In 1933, Smith, Andrews and Laidlaw isolated a strain of influenza virus from throat washings of patients. Study has been made of a number of influenza epidemics which have occurred during the past seven years. Influenza virus has been recovered from some but not from all of these outbreaks. In 1937, Francis for example, failed to recover the virus from material obtained during an epi-

demic in California. Similarly, Horsfall and associates in 1940 were unable to recover influenza virus. The virus isolated in 1933 has been designated as Influenza A virus. This virus is now known to be an important causal agent of influenza. Recovery of virus from throat washings entails a technic requiring a minimum period of three weeks. Although Influenza A virus is not pathogenic for mice, serial passage through ferrets renders the virus adaptable for study with mice. The complement fixation test and the neutralization test are both accurate in determination of influenza antibody content in human serum. Tests for antibody content in serum specimens reveal that during an epidemic of influenza, about 30 per cent of the contacts harbor the virus and have a subclinical type of infection. Such individuals probably play a much more important part in the spread of influenza than do those who are sick. Interest at this time centers about a vaccine for stimulating antibodies and developing active immunity against influenza. Vaccine made from formalinized influenza virus and canine distemper virus is being used in experimental work. No convincing evidence is available at this time to indicate that the vaccine is effective. Appraisal of the possible value of this complex vaccine must depend upon opportunity for comparative studies of influenza in treated and untreated persons.

(Continued on page 561)

Poliomyelitis Case Reports & Rates per 100,000 for June, July, August, Sept., & thru Oct 15, 1940



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DIPHTHERIA IMMUNIZATION

During the month of November the Iowa State Medical Society in cooperation with the State Department of Health resumes the campaign against smallpox. This year in addition to smallpox vaccination, active immunization against diphtheria is included. The energetic cooperation of every physician is urged in order to eradicate two absolutely preventable diseases.

Inasmuch as immunization against diphtheria is included it appears wise to point out that numerous studies have demonstrated that one dose of alum-precipitated toxoid does not confer a lasting immunity. Nevius and McGrath¹ in a report on the duration of immunity over a five-year period report a group of 72 children who were immunized by one dose of alum-precipitated toxoid. This group was Schick negative at the end of one year, but at the end of five years 20 per cent were Schick positive. A similar group of 78 children immunized by three 1.0 cubic centimeter doses of toxin-antitoxin and Schick tested at the end of five years revealed only four per cent Schick positive. Fraser and Halpern² compared the immunity conferred by one 1.0 cubic centimeter dose of alum-precipitated toxoid and by three 1.0 cubic centimeter doses of plain toxoid, checking the immunity by the determination of the antitoxin content of the blood. After twelve months only 19 per cent of those receiving the one dose had more than 1/100 unit of antitoxin per cubic centimeter of blood, in contrast to 91 per cent in the group which had received the three doses of fluid toxoid (1/100 unit of antitoxin per cubic centimeter of blood gives a negative Schick test). Park³ in a comparative study after a two- to three-

year period reported 96 per cent negative Schick tests in a group given three 1.0 cubic centimeter doses of toxin-antitoxin, 100 per cent negative Schick tests in a comparable group given two 1.0 cubic centimeter doses of fluid toxoid, and only 18 per cent negative Schick tests in a group given one 1.0 cubic centimeter dose of alum-precipitated toxoid. Cooke⁴ in the immunization of 1,000 student nurses found that the most effective measures were two injections of alum-precipitated toxoid with an interval of several months between or three injections of plain toxoid with an interval of several weeks between doses. Greenebaum and Selkirk⁵ conclude that one dose of alum-precipitated toxoid does not immunize. Thelander⁶ also indicates that the one dose method is not satisfactory. The report of the Committee on Immunization of the American Academy of Pediatrics states "one dose of alum-precipitated toxoid cannot be relied upon to immunize an individual."

On the other hand Dean and Hyman⁷ demonstrated that 89 per cent of a group of children immunized by one dose of alum-precipitated toxoid were Schick negative after an interval of twenty-eight months. Bundesen, Fishbein and White⁸ after a two-year interval found 95 per cent of 113 children, who had been given the one dose method, with satisfactory evidence of immunity.

The evidence points conclusively to the fact that regardless of the material employed more than one dose is required. The first dose constitutes the primary stimulus, and the second dose is a secondary stimulus which results in a more lasting immunity. For children under ten years of age the recommended procedure consists of three injections at intervals of two to four weeks of 0.5 of a cubic centimeter, 1.0 cubic centimeter, and 1.0 cubic centimeter of either fluid toxoid or alum-precipitated toxoid. Park³ suggests if only two doses are to be employed that the best results are obtained by the use of 1.0 cubic centimeter of alum-precipitated toxoid followed by a 1.0 cubic centimeter dose of fluid toxoid. For individuals over ten years of age three doses of toxin-antitoxin at two- to four-week intervals are recommended. The optimum time for immunization is at nine months of age. Schick tests should be done within six months after immunization and again at six and twelve years of age.

In conclusion may it be pointed out that in selecting a technic of diphtheria immunization, ease of administration should not be the primary consideration. The sole purpose is to confer a lasting immunity and if it is to be done it should be done right or not at all. If questionable procedures are employed, both physicians and parents

will be lulled into a false feeling of security, and disastrous results may follow.

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AFTERMATH OF POLIOMYELITIS EPIDEMIC

Several years ago a hurricane, contrary to the usual custom of eastern storms, swept through the heart of New England, leaving in its wake piled up shipping, flattened buildings, countless century old trees either uprooted or jaggedly snapped off in their mid-sections, and, worst of all, a certain toll of human injury and even of lives.

Iowa, too, in this year of 1940 has been visited by a hurricane, the worst in all its history, a hurricane not of wind and storm but of disease. In its wake has been left wreckage, wreckage in human limbs and lives even more disastrous than that which followed the sea-board storm. The reported cases of poliomyelitis have mounted week by week to the present tragic total of some 878 victims. A few of these have died, many more have completely recovered without trace of the terrifying experience through which they passed, but the remainder have been left with parts of their bodies no longer capable of responding to their owners' wills. As the New Englanders heroically and uncomplainingly, grateful in their hearts that they and theirs had been spared, went about the task of repairing and effacing the damage wrought by Nature's grim jest, so now must the citizens of Iowa, with every means at their disposal, seek to undo the damaging consequences of its poliomyelitis epidemic.

A great deal can be done for every poliomyelitis patient, regardless of the extent of the paralysis. Experience has shown that rarely are the anterior horn cells completely destroyed by the virus, even if, at the beginning, muscle function is entirely absent. Injury to the nerve cell is repaired slowly, being as long as eighteen months to two years or even longer in cases where axis cylinders have degenerated. This length of time is required to grow new axis cylinders from the nerve cell to its termination in the muscle. Where the function of the nerve cells is impaired only by surrounding edema or pressure from hemorrhage, recovery of muscle use occurs in a much shorter time, usually within two or three months. Whatever the situation, it must be borne in mind that the poliomyelitis virus does not injure muscle fibers themselves. In the beginning, useless muscles result from nerve cell damage in the spinal cord. However, muscles can be damaged through neglect. To quote from a recent publication, *"Unless support is given, affected muscles become stretched and their stronger opponents become contracted. Deformity and loss of function result. Inability of the affected muscles to contract results in diminished blood supply, and through lack of nourishment the contractile muscle tissue may be replaced by fibrous and fatty tissue. Even if the nerve impulse is restored, muscles which have been permitted to become stretched and to suffer degenerative changes cannot respond. This explains the reason for constant protection of affected muscles in all the stages of treatment. Protection of muscles means supporting them in positions which will not permit them to become stretched."

Such is the obligation which confronts those responsible for the care of Iowa's 1940 poliomyelitis victims. Let no child in our great state suffer one whit more permanent incapacity than is absolutely inevitable as a result of nerve cell damage beyond human control. Let us keep every paralyzed muscle supported in the proper position and at rest for months, if necessary, and let us maintain its nutrition by gentle massage and passive motion when the time comes, so that deformity will be completely prevented, and function restored to as near normal efficiency as possible. Let us not merely be thankful that life has been spared, but let us give every child the chance he deserves and in most cases can have, for return to an active, useful and happy life.

*Stevenson, Jessie L.: *The Nursing Care of Patients with Infantile Paralysis*, The National Foundation for Infantile Paralysis. 120 Broadway, New York, N. Y., 1940.

PRESENT STATUS OF MEDICAL PREPAREDNESS*

The October JOURNAL carried a comprehensive editorial on medical preparedness in the state of Iowa, and your Committee in this issue will endeavor to bring its report up to date. Last month the Committee was engaged in obtaining recommendations from each county medical society for examining physicians for each local draft board. It is proud to report that the deputy councilors were 100 per cent prompt in sending such recommendations, and within forty-eight hours the state office was able to supply the office of the Adjutant-General with the names of approved physicians for each board. The list was submitted to the Governor, he selected one of the two suggested and that doctor was asked to serve as examining physician. Therefore, the first phase of the program is ready to function.

Five Boards of Appeal have been set up in Iowa, and the Committee has been asked to suggest the names of three physicians for each board. These recommendations are now in the hands of the Governor. The Committee has also recommended the appointment of Medical Advisory Boards in each councilor district, and has submitted the names of specialists who might serve in such a capacity, but to date the Governor has not taken any action toward appointing such boards. The War Department has asked the Committee to recommend specialists who would be willing to help the Medical Induction Board with the necessary physical examinations when draftees are inducted into service. A list of thirty-six names was prepared; each doctor on the list was asked if he would serve; and the list has now been given to the War Department.

Thus it will be seen that medical preparedness has been going forward in Iowa. All information requested by the Governor or by the War Department has been assembled and made available for them, so that when the conscription machinery begins to turn, the medical profession will be ready to do its part in relation to the draftees.

This brings up the point as to what is being done in county medical societies to safeguard the practice of those physicians who will be called upon to serve in the army. Several have already left their homes; some of them have asked the central office to supply a doctor to care for their practice. Unfortunately it is impossible to find enough physicians without locations to fill these requests. We strongly urge each county medical society to work out some arrangement whereby doctors remaining at home will protect the practice of the man who

leaves for military service. This is an obligation we owe to the patient and the doctor alike. Certainly in our state, where we are all bound by strong ties of friendship, we need not resort to formal rules and regulations, but we should arrive at some agreement on the handling of this problem.

IOWA'S PREPAYMENT PLANS*

Prepayment for Hospital Services

Inasmuch as the hospital prepayment plan in Iowa has been supported by the Iowa State Medical Society it would seem that an occasional report of its progress would be in order. The plan is progressing very satisfactorily, and is rapidly expanding to offer its services to a larger portion of the state. On the first of October there were hospital members in thirty-six communities, and definite promotion has been carried on in eight of these towns. After the work was well established in Des Moines, offices were opened in Cedar Rapids and Dubuque, since these three communities furnished the major portion of the funds to start operation of the plan. Since then Burlington, Muscatine, Marshalltown, Clarinda and Waverly have been actively canvassed and the services accepted by a good group of contract holders in each town. By the time this issue of the JOURNAL is printed operation will have been started in Mason City and the Tri-Cities of Davenport, Moline and Rock Island.

The Tri-Cities, being to a great extent a single community, were desirous of enrolling in one plan and after studying both Illinois and Iowa plans, and receiving information that the Iowa plan could operate in Illinois, they decided to contract with the Iowa plan. The inclusion of these cities, which are primarily industrial, will be of great value because the enrollment and operation is much simpler in the places where there are more of the larger industrial plants, and employers of large groups of people.

Operations in Clarinda and Waverly, towns of about 5,000 population, mark the first efforts to enter into the smaller communities of Iowa. In each of these the plan was opened to employed groups of five or more, and approximately ten per cent of the population in each town is enrolled. Efforts are being made to work out methods for enrolling others in these communities who are individually employed, but have some common interest or organization through which enrollment can be effected. It has been proved, beyond question, that the enrollment of individuals cannot be safely undertaken. Experiments in New York and other

*From the Committee on Medical Preparedness.

*From the Medical Economics Committee.

cities proved that such a scheme would soon bankrupt a plan. When individuals are enrolled there is an automatic enrollment of a large number who are excessively hospital-conscious, or who are below the average in health. Groups have been successfully enrolled through service clubs, newspapers, churches and similar organizations, and such plans may be used if the demand is sufficient.

At the present time more than 12,000 persons are covered by the plan. Up to the first of October approximately \$9,000 had been paid to the hospitals for services rendered the subscribers, and \$1,100 was due hospitals on that date and would be paid following the approval by the executive committee. The statement of the company on September 1 showed that the income had become greater than the expenditure, and by October 1 a substantial reserve was being laid aside in case of an unusual demand during the winter months. With the rapid growth in the number of contracts issued there is no doubt that the plan will be successful. Experience has shown that even the present enrollment is sufficient to carry the overhead, pay all bills, and allow the accumulation of a reasonable reserve. However, it is the desire of everyone connected with the plan to have it reach as many people in the state as possible. A committee of the Iowa Farm Bureau Federation is studying the plans and expects to endorse the principle and assist in the development of methods to make it available to the farm population.

The Council on Hospital Service Plans of the American Hospital Association carries on a continuous study of the various plans, receives reports of their operation, and is able to correlate this information so as to help the various plans in their development. It has found many factors which make for success or failure and is able to warn the plans in advance of unsound moves, and point out methods which have proved valuable in similar circumstances elsewhere. In an analysis of 200,000 patients hospitalized under prepayment plans, it was found that from 30 to 60 per cent elected to use better accommodations than those provided by the plan. In other words, if the plan provided semi-private rooms, the patient was able to pay the small difference and have the advantage of a low priced private room. In addition, in one tabulation of 10,000 patients it was found that 35 per cent of these would have had to enter public wards if their hospital service had not paid their expenses in semi-private rooms. This means that 3,500 patients paid their hospitalization through this plan instead of having the expenses paid in the wards by the public through taxation. The patient benefited, the hospital benefited and the

public benefited. These patients were also cared for by their own private physician instead of receiving free care through the provisions made in the wards.

Hospital prepayment seems to be meeting a real need of the public; it is well received in all communities where it has been presented, and is "sold" to the community with a minimum of effort and expense on the part of the plan itself.

Prepayment for Medical Services

In contrast to the statements made in the preceding article on hospital service plans are the facts regarding the attempts in various states to furnish medical care to low income groups on a prepayment basis. For some time we have heard of the crying need of the public for some method of budgeting their medical expenses, and spreading the costs over a period of time. The newspapers have dealt with the subject, the various foundations and studies have shown a great desire on the part of the public for such plans, and the National Health Conference held that the need and demand were so great the federal government itself should take the matter in hand. With the great increase in interest in national defense, and with the necessity of bending all efforts to improve our condition along defense lines, the national figures have, at least temporarily, lost interest in the problem.

However, the medical profession has continued its research along this line in several states and counties and is gradually gathering a great deal of information as to the demand for this type of service. A study of these experiences is very interesting and leads one to the inescapable conclusion that the public is not only not demanding, but is not even interested in any such plans. State-wide plans have been put in operation in California and Michigan, and tentative plans for this fall are being developed in New Jersey, New York and Utah. Wisconsin used three areas during the last year in trying out three different types of plans, and after a year's operation expects to drop all of them as not having sufficient support to justify their continuation. (For a more complete discussion of this subject, see the August, 1940, issue of the *Wisconsin Medical Journal*.)

The Michigan Medical Service offers two contracts; one covers complete medical and surgical care, the other surgical care only. On May 31, 1940, there were 61,783 subscribers to the surgical benefit plan, but 58,000 of these were issued at one time to the employees of the Ford Motor Company. Only about 3,000 were issued to other groups, although a concentrated sales effort was made. There were only 1,200 complete medical

service policies issued and these after four months of continuous efforts by sixteen representatives of the plan. During the first three months of operation about \$50,000 were paid for services rendered to 1,200 patients. There were sufficient funds to pay the physicians in full, cover operating expenses and leave a small net balance. The issuing of the large group of policies for surgical benefits only to the Ford employees has been of great benefit to the plan, and loads the statistics on the favorable side. The experience in other groups has been very unsatisfactory, and there are not enough now enrolled in the plan to make it self supporting.

The California Physicians Service offers complete coverage, hospital, medical and surgical, for \$2.50 per month per person. In addition there are deductible policies and those offering only physician's or hospital services. On July 1, 1940, after ten months of intensive work there were only 14,840 subscribers, in spite of the fact that such an apparent demand was worked up in the state there was serious consideration given to developing a state operated medical care plan. This plan is not self supporting as yet since it had a large initial loan for organization from the California State Medical Society and had to have an additional authorization of funds from that society after almost a year's operation. Almost 80 per cent of the members of the California State Medical Society have joined the plan, have placed literature before their patients, and have attempted to make the plan work. Possibly further effort and expense will finally get the plan on its feet, but the public has been slow in accepting the services offered.

New Jersey expects to inaugurate a statewide plan, but for the year 1940-1941 the plan will be limited to two industrial counties. This plan is limited to groups, the cost is based on a percentage of the subscribers' earned income, and payment is limited to \$250 for a single person or \$500 for a family in any one contract year.

New York expects to start a plan in operation this fall. It will be organized in county units, no unit to include more than eighteen counties. The cost varies from \$15 to \$9.00 per year depending on the income and size of the family. Payment varies from \$200 to \$400 per year depending on the contract. In addition the policy holder must pay from \$5.00 to \$10.00 on any medical bill during a contract year before the plan begins payment on the balance. This is similar to the deductible automobile liability policy. Under this plan the physician is paid on a unit basis; his pay will de-

pend entirely on the funds available and will vary from time to time.

The Utah plan is a cash indemnity insurance policy. For a fee of from \$10.80 to \$24.00 per year, depending on the size of the family, the policy holder is reimbursed in cash for certain stated conditions, with a limit of \$100 for any one individual and \$300 for any one family. This is not expected to cover all hospital and medical costs, but to cushion the load, and make it possible for the insured more easily to pay the balance.

The Advisory Committee on Voluntary Sickness Insurance of the State Medical Society of Wisconsin made a detailed study of the operation of the plans tried in three counties in that state. This committee feels that their experimentation has been worthwhile, and that further experiment with different plans should be carried out, in an effort to find plans which will prove effective. Several of their conclusions, based on a year's experience are well worth noting, and in most instances bear out the opinion expressed by the medical profession in the past. A few of the most interesting follow.

There was little spontaneous demand for the services by the people in the three communities where they were made available. Much publicity, many public and industrial meetings, and other methods of getting publicity failed to secure enough applicants to carry the plans to success. Subscribers to voluntary sickness insurance do not make use of preventive measures to any increased extent, even though there is no cost attached to these services. Immunizations were not increased, and prenatal examinations were not sought either earlier in pregnancy or more often than when paid for as individual services. Those who subscribed to the plans were not those for whom they were really intended. The subscribers were usually those in the "comfort bracket" who had been accustomed to paying their medical bills in full. The lower income group did not subscribe, and thus there was little real benefit. Free choice of physician was insisted on by the public participating, and is not a catch word used by the medical profession. Under sickness insurance a small percentage of the physicians render a high percentage of the services. The patients still call the physician of their choice, and there is no tendency for the work to be evenly distributed among the physicians. The busy physicians are still busy and the unoccupied are still unoccupied. It is not desirable to establish a large number of individually operated sickness insurance plans, because there is a great duplication in overhead, supervision, legal

costs and similar expenses. Any plan should be extensive, and if possible statewide in its scope. Any plan of voluntary sickness insurance to be successful must have not only the approval, but also the active support of the physicians in the plan.

These observations bear out the opinion expressed previously in these columns that the public does not actually demand sickness insurance. There is an emotional appeal to the subject. The picture of the poor sick person, suffering for lack of medical care, due to inability to pay the high costs, is one which moves any one to pity. In actual practice, however, when that individual is given the opportunity to pay for these services in advance, at a fee within his ability he is seldom interested, and prefers to take the risk of being sick. The individual who can pay his bills will often see the desirability of budgeting these costs in this fashion and will subscribe to the plan, but he is not the man for whom it is intended. It may be that plans can be worked out which will appeal to the group for whom they will be most beneficial, but at this time no plan has been accepted with enthusiasm, and in fact it has been necessary to force plans on the few who could be persuaded to join. Further studies will be watched with interest.

MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS AND COMMITTEES

Meeting of the Iowa Interprofessional Association Sunday, September 8, 1940

The Iowa Interprofessional Association met at the Kirkwood Hotel in Des Moines Sunday, September 8, 1940, with the following members present: Mr. G. W. McChane of Waterloo and Mr. L. L. Eisentraut of Des Moines from the Iowa Pharmaceutical Association; Doctors F. N. Ralston, F. W. Pillars and E. H. Ford of Des Moines and H. O. Wormhoudt of Pella from the Iowa State Dental Association; Miss Leta Seaman of Des Moines, Miss Stella Scott of Iowa City, and Miss Margaret Thompson of Oakdale from the Iowa State Association of Registered Nurses; Doctors R. D. Wall of Des Moines, H. C. Smith of Fort Dodge, C. C. Franks of Grimes, and J. A. Barger of Des Moines from the Iowa Veterinary Medical Association; and Doctors Fred Moore and Robert L. Parker of Des Moines, R. D. Bernard of Clarion, F. P. McNamara of Dubuque, and L. A. Coffin of Farmington from the Iowa State Medical Society.

The meeting was called to order by the president, Mr. McChane, and the minutes of the previous meeting were read and approved. The treasurer's report was read, approved and accepted. Reports of county interprofessional meetings were given, and next year's annual meeting which is to be held in connec-

tion with the annual meeting of the Iowa State Medical Society was discussed. The suggestion of having an outstanding speaker on general principles of interprofessional work, followed by a panel discussion by faculty members from the different state schools met with favor.

Two sections of the constitution were changed so as to fix the date of the annual meeting on the first Sunday following Labor Day, and to call for election of officers at the annual meeting in September.

The Executive Council for 1940-1941 was elected as follows: Miss Stella Scott, R.N.; Fred Moore, M.D.; F. W. Pillars, D.D.S.; H. C. Smith, D.V.M., and L. L. Eisentraut, Pharm. This group elected George W. McChane president for the coming year, E. H. Ford, vice president, and Stella Scott, secretary and treasurer.

Mr. McChane appointed the following program committee to plan for the 1941 annual meeting: Fred Moore, Chairman; R. D. Bernard, E. H. Ford, H. C. Smith, Stella Scott, and L. L. Eisentraut.

Meeting adjourned at 3:30 p. m.

Meeting of the Board of Trustees Saturday, October 5, 1940

The Board of Trustees of the Iowa State Medical Society met in the central office in Des Moines Saturday morning, October 5, at nine o'clock. Those present were Doctors O. J. Fay, John I. Marker and Lee R. Woodward of the Board of Trustees; Lee F. Hill, editor, Robert L. Parker, secretary, and Channing G. Smith.

Business transacted was as follows: Dr. Smith reported on the present status of the survey on the cost of medical care; minutes were read and approved and bills authorized; Miss Spaulding's resignation as of November 1 was accepted. Mrs. Dolk was named secretary of the Speakers Bureau starting November 1, and Miss Alma Jensen was hired to take Mrs. Dolk's work; bids for publishing the JOURNAL in 1941 were discussed but no action taken except to instruct Miss McCord and Miss Stewart to visit the plants submitting bids. Meeting adjourned at noon.

PHYSICIANS NEEDED

Several communities in Iowa are without the services of a doctor. Physicians interested in these vacancies should communicate with the Iowa State Medical Society, 505 Bankers Trust Building, Des Moines, Iowa.

Red Cross and Harvard Study War Epidemics

Of particular interest to the medical profession in the far-flung Red Cross war relief activities are the efforts being made to study epidemics under wartime conditions, and the supplying of blood plasma collected from donors in the United States to the British Red Cross. In both of these projects the American Red Cross is cooperating with other agencies.

Plans for this latter project, the first of its kind in history, were initiated by the American Red Cross and the Blood Transfusion Betterment Association of New York City this past summer, following an appeal from the British Red Cross.

Under the plan as worked out, the Blood Transfusion Betterment Association assumed responsibility for the technical aspects of the program, while the Red Cross took charge of mobilizing thousands of volunteer donors in greater New York and of shipping the plasma solution to England. Dr. John Scudder of the Blood Transfusion Betterment Association was assigned to organizing the collection of plasma from volunteers.

Dr. William DeKleine, national medical adviser of the American Red Cross, in announcing the project explained that the newly perfected plasma saline mixture would be used in this work. This method greatly facilitates storing and shipping. At the outset of the program the British Red Cross was prepared to handle 300 liters of the solution each week.

Announcement of the plan to aid the British Red Cross was made following completion of experimental plans for the possible organization of a nationwide corps of Red Cross volunteer blood donors whose plasma would be available to the several medical services of the United States government in case of national emergency. This project was started last summer in three cities of the United States in a preliminary study designed to perfect methods of collection, storage and transportation. Other cities were subsequently added. When, early in September, an urgent appeal was received from the British Red Cross for shipment of greater volumes of blood plasma, twenty-one additional Red Cross chapters in the greater New York area were added to the list engaged



in enrolling volunteer donors.

The study of epidemics under wartime conditions is being conducted in England in cooperation with Harvard University. Joint announcement of the project was made August 18 by Norman H. Davis, Chairman of the American Red Cross, and James B. Conant, President of Harvard University. Under the agreement as worked out, the American Red Cross undertook to furnish a one hundred-bed hospital of the temporary or hut type, along with complete equipment, and also to furnish the nursing and non-professional members of the staff. The medical staff of the hospital is being

supplied by the newly created Harvard Public Health Unit for field and laboratory work in epidemiology in Great Britain. Dr. John B. Gordon, professor of preventive medicine and epidemiology, Harvard Medical School, is serving as director of the project.

The joint announcement of the project, among other things, stated: "This project will not only fill an urgent need in England, thereby bringing expert and tangible aid to a hard pressed people, but also will provide experimental information of great value to work of the Red Cross and American doctors. The staff of the Unit and Hospital will be in a position to acquire information on problems of public health under conditions of modern warfare which may be of greatest value in the preparation of an efficient and intelligent defense program for this country. Aside from the importance of information obtained from the point of view of national defense, such data would have broad value under conditions of natural disaster or any other event which causes broad dislocation and shifts in population. Thus it would be helpful to the Red Cross in pursuit of its humanitarian aims in peacetime as well as wartime."

The project further provides for three related undertakings each of which is essential to the effectiveness of the whole. These are:

1. The study by a group of mobile investigators of epidemics and communicable disease under unusual or wartime conditions as they occur in the fields.

(Continued on page 555)

SPEAKERS BUREAU ACTIVITIES

TRANSCRIPTIONS AVAILABLE

In the September issue of the JOURNAL, the Speakers Bureau announced a new plan of postgraduate medical education for smaller county medical societies, or other medical groups, whereby scientific programs could be provided by means of electrical transcription. Thus far the following lectures have been recorded and will be available for use in the very near future:

"Behavior of the Young Child"

"Principles of Infant Feeding"

Horton Casparis, M.D., Nashville

"Diseases of the Newborn"

Irvine McQuarrie, M.D., Minneapolis

"The Acute Abdomen"

Arnold S. Jackson, M.D., Madison

"Diseases of the Heart; Diagnosis and Treatment"

Hugh B. McCulloch, M.D., St. Louis

"State and City-Wide Plans for the Care of the Premature Infant"

Julius H. Hess, M.D., Chicago

The recordings vary in length from three-quarters of an hour to an hour and a half; the Speakers Bureau will furnish suitable reproducing equipment, together with the records, free of charge, upon request at this office.

From time to time the Speakers Bureau has endeavored to emphasize its eagerness to arrange postgraduate medical lectures according to the stipulations of each group which sponsors a course. Our primary objective is to provide subjects and speakers which will meet with the approval of every physician. We are always anxious to receive as much information as possible from the local committees in charge concerning the type of material and the lectures they desire. Their specifications enable us to formulate a tentative schedule which we may submit to them for further revision and eventual approval.

We believe this procedure not only stimulates greater enthusiasm for the lectures, but also establishes a more intimate working order between the Speakers Bureau and the postgraduate course group.

RADIO SCHEDULE

WSUI—Tuesdays at 1:30 p. m.

WOI—Wednesdays at 2:45 p. m.

Nov. 5-6 Medical Preparedness, Thomas F. Suchomel, M.D.

Nov. 12-13 Sinusitis, John W. Jansonius, M.D.

Nov. 19-20 Modern Preventive Medicine, Daniel C. Barrett, M.D.

Nov. 26-27 Physiology of the Kidney, Edward M. Honke, M.D.

POSTGRADUATE COURSE LECTURES FOR THE MONTH OF NOVEMBER

Marshalltown	November 5	Arthritis and Its Treatment, Morris J. Shapiro, Minneapolis
Ottumwa	November 5	Diseases of the Heart, Elmer E. Kottke, Des Moines
Panora	November 5	Common Skin Diseases, Ruben Nomland, Iowa City
Knoxville	November 6	Heart Disease, Daniel J. Glomset, Des Moines
Boone	November 6	Arthritis and Its Treatment, Morris J. Shapiro, Minneapolis
Sheldon	November 7	Reasons for Bad Results in the Treatment of Fractures, Henry W. Meyerding, Rochester
Humboldt	November 7	Treatment of Fractures, Lewis M. Overton, Des Moines
Panora	November 12	Urology in General Practice, Lawrence E. Pierson, Sioux City
Sheldon	November 14	Common Diseases of Children, George E. Robertson, Omaha
Humboldt	November 14	The Acute Abdomen, Fred C. Hill, Omaha
Chariton	November 19	Physical Diagnosis, Paul F. Stookey, Kansas City
Rockwell City	November 19	Bête Noire of Medical Practice, John I. Marker, Davenport
Ottumwa	November 19	Occiput-Posterior, John H. Randall, Iowa City
Sheldon	November 20	The Neurological Examination in General Practice, Paul C. Bucy, Chicago
Des Moines	November 20	The Relation of Physiology to General Medicine, Andrew C. Ivy, Chicago Traumatic Surgery, James Barrett Brown, St. Louis

WOMAN'S AUXILIARY NEWS

MRS. H. I. MCPHERRIN, *Chairman of Press and Publicity Committee*
5822 North Waterbury Road, Des Moines

President—MRS. ELBERT T. WARREN, Stuart

President Elect—MRS. W. R. HORNADAY, Des Moines

Secretary—MRS. FRED MOORE, Des Moines

Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

THE ANNUAL STATE IMMUNIZATION PROGRAM

The Committee on Child Health and Protection of the Iowa State Medical Society recommended to the State Society that a statewide program of vaccination against smallpox and diphtheria be conducted in cooperation with the State Department of Health's annual immunization campaign. The week of November 4 to 11 has been set aside for this campaign.

The members of the Auxiliary should support this statewide program. Considering the present knowledge and facilities for immunization, the incidence of smallpox in Iowa is exceedingly high. During the period of 1930 to 1939, Iowa reported 11,821 cases of this disease, as against 2,258 in New York and the five adjacent states.

The comparatively low incidence of diphtheria is definitely due to annual immunization efforts. The majority of these projects in the past have been sponsored by lay organizations and conducted in local communities or school districts in cooperation with medical societies. This practice frequently allows for a break in the physician-patient relationship. There are enough sporadic cases and small epidemics to make an immunized population necessary to prevent large scale outbreaks. It is important that medical groups assume the responsibility of this campaign in each community. A chairman is appointed by each county medical society to promote this plan. Members of the Auxiliary should contact their county medical society secretary for further information. An outline for organizing and conducting a campaign will be furnished by the State Department of Health, in addition to literature, posters and suggestions for lay groups cooperating in the immunization program.

Program Committee,
Child Welfare Division

HYGEIA, THE HEALTH MAGAZINE

The purpose of *Hygeia* is to give to the general public, in a form which it is prepared to understand, such information as will lead people to seek proper medical advice when the occasion arises, and to achieve a better understanding of this advice when it is given. *Hygeia* can accomplish this only by

having a wide circulation. It is an effective means of educating the general public to the point of seeking proper medical advice at the right time.

The official resolution on *Hygeia*, adopted at the Philadelphia session of the American Medical Association in 1931 reads: "That the House of Delegates urge the Woman's Auxiliary to the American Medical Association, including the county, state and national organizations, to recognize as one of its chief activities the promotion of the distribution of this publication through parent-teachers associations, boards of education and similar bodies interested in education."

It is the hope of your committee that we have better *Hygeia* organizations in every county auxiliary, with each member doing her part in the only way that counts—getting subscriptions. The sum of \$400.00 will be given by *Hygeia* in cash prizes to the auxiliaries securing the largest number of subscription credits to *Hygeia* during the contest which began September 1, 1940, and will end January 31, 1941.

Mrs. H. F. Clark, Chairman
Hygeia Committee

Cass County

Members of the Woman's Auxiliary to the Cass County Medical Society met for a seven o'clock dinner at the Pullman Hotel in Atlantic, Friday, October 18. Mrs. E. T. Warren of Stuart, president of the state organization, was an invited guest, and gave a very interesting and instructive talk on the program for the year. It was agreed at the business meeting to follow the program outlined by the state program committee.

Mrs. E. C. Montgomery, President

Dubuque County

The fall meeting of the Woman's Auxiliary to the Dubuque County Medical Society was held Tuesday, October 8, at the Elks Club in Dubuque. Following a noon luncheon, a business meeting was held, at which it was decided to follow the suggested program outline in the October Auxiliary News, and do at least some of the recommended reading.

It was also decided to get in touch with the local Red Cross chapter, and for the Auxiliary to do some knitting and sewing, as a unit. We are working hard on the *Hygeia* campaign, and hope to be up among the leaders.

Mrs. R. R. Harris, Secretary

A. M. A. BROADCASTS

The American Medical Association has just announced its sixth annual series of dramatized radio programs, entitled "Doctors at Work." The series will open Wednesday, November 13 and run for thirty consecutive weeks, closing with a broadcast from the A. M. A. meeting in Cleveland on June 3, 1941. The program is scheduled for 9:30 p. m., central standard time, and will be carried over the Blue Network of the National Broadcasting Company. "Doctors at Work" will dramatize what modern medicine offers the individual in the way of opportunities for better health and the more successful treatment of disease. Incidental to this main theme, the program will explain the characteristics of the different fields of modern medicine and its specialties. Descriptive posters for local distribution may be secured upon request from the Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago. Program titles will be announced weekly in the *Journal of the American Medical Association* and monthly in *Hygeia*.

The value of these national broadcasts depends entirely on the extent to which they are heard from coast to coast. Members of the auxiliary can do much to assure the success of these radio programs in Iowa by publicizing the series in the various clubs and lay organizations to which they belong.

DO YOU KNOW

That November is immunization month in Iowa?

That you should check on your own family to see if it is adequately protected against diphtheria and smallpox, and that you should encourage your neighbors and friends to do the same?

That every infant should be vaccinated against smallpox before he is twelve months of age, and that immunization against diphtheria should begin at nine month of age, whether or not either of these diseases is present in the community?

That 60 per cent of all children from six months to three years of age are susceptible to diphtheria; that from three to five years, 40 per cent are susceptible; that even up to twenty-five years of age as high as 25 per cent are susceptible to diphtheria?

That many persons who are not susceptible may

harbor diphtheria bacilli in their noses and throats without showing any outward signs of the disease?

That known "carriers" should be quarantined and not released until a culture shows that they are no longer carriers?

That persons presumably recovered from diphtheria often retain the bacilli in their noses and throats and that they should be treated as carriers?

That diphtheria antitoxin is recognized as the only essential agent in the treatment of the disease, but damage produced by diphtheria toxin before antitoxin is administered is not undone and deaths multiply with each day treatment is delayed?

That no ill effects are known to have followed administration of an excess of antitoxin, but that deaths result from the use of too little?

That antitoxin became generally used in 1894?

That you should be instrumental in seeing that immunization against diphtheria becomes universal?

That the Schick test should follow immunization treatments?

That smallpox vaccination is 142 years old?

That vaccination during infancy is not adequate; that a second vaccination should follow three to five years later, and that even a third vaccination is recommended in case there is a smallpox epidemic in your community?

That a large part of our population still remains unvaccinated?

That our own state, supposedly one of the most literate, best informed and most progressive states in the Union, is not one of the states which requires vaccination?

That a vaccination scar is a badge of good citizenship and a mark of good judgment?

That fumigation is not to be relied upon, and has largely been discarded?

That in place of fumigation, bed linens and towels should be boiled even before washing; that all eating utensils used by the patient should be boiled immediately after removal from the sick room; that all books and toys used by the patient should be burned and that the room should be thoroughly exposed to sunshine and fresh air?

That it is past time for eradication of smallpox and diphtheria not only in Iowa but in the United States; that these diseases should have disappeared long ago?

That you can make your own state free from eradicable diseases?

That in your own community you can help with good newspaper publicity during immunization month?

Mrs. E. E. Shaw

BOOK NOTES

Men At Their Worst by L. L. Stanley is something new and different in the way of a doctor's memoirs. Dr. Stanley was chief surgeon for twenty-seven years at the California State Prison in San Quentin. His book is crammed with suspense and atmosphere and has the added values of authenticity and social significance.

G. R. Harrison's *Atoms In Action* is intended for readers of all ages. It is an account of science's contribution to the improvement of man's everyday life.

Poison Trail by W. F. Boos has been called the most popular scientific work since De Kruif's books. It is the exciting story of man's incessant battle against his most insidious enemy.

Dr. Harvey Cushing left a little book of essays entitled *Medical Career* which will be of interest to student or layman. His writing reveals a man of wit, charm and genius.

The following titles are all autobiographies and are all good reading. *In Search of Complications* by Eugene de Savitsch reveals his adventures in life and surgery. It is thrilling and reflective as is Hugh Young's *A Surgeon's Autobiography*, another absorbing tale of a brilliant life.

Doctor in Arabia by P. W. Harrison is the story of a doctor who spent thirty years under the most unfavorable conditions possible, practicing medicine and Christianity. This book carries the spell of unknown places; the mystery of part of the world that most of us would never see.

Abraham Flexner's *I Remember* is in a little different vein, also. It is the life history of the man who raised the standards of American medical education to the highest in the world.

Mrs. Keith M. Chapler

SPEAKERS BUREAU RADIO SCHEDULE

WSUI—Tuesdays at 1:30 p. m.

WOI—Wednesdays at 2:45 p. m.

Nov. 5-6 Medical Preparedness, Thomas F. Suchomel, M.D.

Nov. 12-13 Sinusitis, John W. Jansonius, M.D.

Nov. 19-20 Modern Preventive Medicine, Daniel C. Barrett, M.D.

Nov. 26-27 Physiology of the Kidney, Edward M. Honke, M.D.

RED CROSS AND HARVARD STUDY
WAR EPIDEMICS

(Concluded from page 551)

2. The organization of a laboratory for the investigation of problems which arise from field studies and the observation of patients in the hospital.

3. The establishment of an emergency type of hospital which will provide for the care of patients and which in connection with the laboratory will supply opportunity for the extended study of disease processes initially observed in field and laboratory.

The first two undertakings will be carried out by the Harvard Public Health Unit; the third by the American Red Cross-Harvard Hospital.

Among the subjects in which the project would be equipped to render assistance and to secure information are the tendency to acute outbreaks of the more common contagious diseases in the early stages of unusual concentrations of populations, whether civilians or untrained troops, and the many new problems resulting from constant bombardment or threat of bombardment from the air of civilians, including the special problem involved in the mass transportation of children.

There is also the vital question of the great pandemic plagues which often accompany war. Leading among these is influenza, the results of which are vividly in the minds of the American people following our experiences in the last war. It will be recalled that in the influenza epidemic of 1918 there were nearly 475,000 cases in the United States and 15,750 deaths. There also were 8,000 deaths from pneumonia. Historically, worldwide epidemics of influenza have occurred at somewhere near twenty-five year intervals and have tended to go with war. It is therefore clearly in the minds of medical experts that conditions are ripe for the appearance of another of the dangerous series of outbreaks of this disease. Work directed toward the prevention of epidemics at the danger point, where actual war conditions obtain, would be of great service. Any information to be derived on the subject would be of tremendous importance, not only from the humanitarian point of view but also from the strictly practical one of national safety.

All war relief operations of the Red Cross are being conducted without interfering in any way with local chapter and national programs at home. These activities which are of primary importance, are supported almost in their entirety from the yearly dues collected from members during the annual Roll Call. In the near future a large increase in Red Cross domestic activities is anticipated. To make this expansion possible, the membership rolls of every Red Cross chapter in the country must be materially increased. Every member of the medical profession is urged to join his local chapter during the annual Roll Call, November 11 to November 30.

SOCIETY PROCEEDINGS

Black Hawk County

Ford K. Hick, M.D., assistant professor of medicine, University of Illinois, College of Medicine, Chicago, discussed the use of oxygen in the treatment of diseases, especially those of the heart, for members of the Black Hawk County Medical Society at a meeting held Tuesday, September 17, in Waterloo. Dr. Hick demonstrated the newest equipment available for administering oxygen, and was assisted by Mr. J. I. Banash of Chicago, a consulting engineer, who also gave an illustrated talk on the mechanics of oxygen and its uses other than in medicine.

Calhoun County

The Calhoun County Medical Society met in Rockwell City Tuesday, October 15, for the seventh in a series of clinical demonstrations. Fred L. Knowles, M.D., of Fort Dodge, presented an orthopedic demonstration.

Carroll County

Members of the Carroll and Crawford County Medical Societies entertained Harold Swanberg, M.D., of Quincy, Illinois, as guest speaker for a joint meeting held in the St. Anthony Hospital in Carroll, Tuesday, October 8. Dr. Swanberg spoke on The Modern Treatment of Uterine Cancer. Invited guests also included physicians from Audubon, Calhoun, Greene, Guthrie and Sac counties.

Cass County

The Cass County Medical Society sponsored a joint meeting of physicians and dentists in the county for the purpose of discussing the present medical preparedness program, and the rôles to be played by the two professions. E. D. McClean, M. D., and L. V. Feike, D.D.S., both of Des Moines, addressed the group.

Cherokee County

Harold Swanberg, M.D., of Quincy, Illinois, presented an illustrated lecture on Benign Uterine Hemorrhage for members and guests of the Cherokee County Medical Society, Tuesday, October 8. The meeting was held at the state hospital in Cherokee.

Dallas-Guthrie Society

The Dallas-Guthrie Medical Society met at the Presbyterian Church Hall in Panora, Tuesday, Octo-

ber 15, for its annual election of officers. Results were as follows: Dr. J. M. Margolin of Perry, president; Dr. C. R. Osborne of Dexter, vice president; Dr. S. J. Brown of Panora, secretary and treasurer; Dr. J. A. Pringle of Bagley, delegate; and Dr. M. H. Brinker of Yale, alternate delegate. The scientific program consisted of a paper on Fractures of the Wrist and Elbow, delivered by Lewis M. Overton, M. D., of Des Moines.

S. J. Brown, M.D., Secretary

Dubuque County

The Ninety-fifth Anniversary of the Dubuque County Medical Society was celebrated by approximately one hundred physicians and nurses, Tuesday, September 17. Physicians participated in the annual golf tournament at the Dubuque Golf Club in the afternoon. After the seven o'clock dinner, the following program was presented: Deafness: Its Treatment as Regards the General Practitioner, John F. Delph, M.D., assistant professor of otolaryngology, Northwestern University Medical School, Chicago; and Injuries to the Hand, Sumner L. Koch, M.D., associate professor of surgery, Northwestern University Medical School, Chicago.

Greene County

The regular monthly meeting of the Green County Medical Society was held at the Hotel Lincoln in Jefferson, Thursday, October 10. Lee F. Hill, M.D., of Des Moines was the guest of the society and spoke on Practical Pediatrics for the General Practitioner. In addition to the members, a large number of visiting doctors were present to hear this splendid address.

John R. Black, M.D., Secretary

Jackson County

J. Carl Painter, M.D., superintendent of Sunny Crest Sanatorium in Dubuque, spoke for members of the Jackson County Medical Society, Thursday, September 26, at a meeting held in Dr. William Lowder's office in Maquoketa. Dr. Painter discussed The Diagnosis of Tuberculosis.

Jasper County

Earl B. Bush, M.D., president elect of the Iowa State Medical Society, and commanding officer of the 136th Medical Regiment of the Iowa National Guard, was guest speaker for the Jasper County

Medical Society at its monthly meeting held Tuesday, October 1 at the Hotel Maytag in Newton. Dr. Bush spoke on Medical Preparedness in the Army. The county society entertained dentists and veterinarians of the county as special guests of the meeting.

Johnson County

The opening meeting of the fall season of the Johnson County Medical Society was held Wednesday, October 9, at the Hotel Jefferson. After the six o'clock dinner, Joseph E. Flynn, Jr., M.D., presented a timely paper on The Pathology of Typhoid Fever. I. H. Borts, M.D., opened the discussion.

R. J. Prentiss, M.D., Secretary

Linn County

Howard C. Naffziger, M.D., of San Francisco, was an honored guest of the Linn County Medical Society, at its regular dinner meeting held Thursday, October 10 at the Hotel Montrose in Cedar Rapids. Dr. Naffziger's address was entitled Muscle Changes Associated with Thyroid Disease, and discussion of the subject was opened by Barclay J. Moon, M.D., and Frederick W. Mulsow, M.D., both of Cedar Rapids.

The next meeting of the society will be held Thursday, November 14, at which time it will entertain Donald Guthrie, M.D., of Sayre, Pennsylvania, associate professor of surgery, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Members of surrounding counties are cordially invited to attend this meeting.

Louisa County

The annual meeting of the Louisa County Medical Society was held Thursday, October 10, at Morning Sun, and Dr. Roy W. Tandy of Morning Sun was named president for the coming year. Dr. Kyle T. DeYarman, also of Morning Sun was elected secretary and treasurer.

Madison County

The Madison County Medical Society met Monday, October 21, at the Winterset Community Hospital. After a six-thirty dinner, William M. Sproul, M.D., of Des Moines, presented a very interesting paper on Geriatrics.

Evelyn M. Olson, M.D., Secretary

Polk County

The next meeting of the Des Moines Academy of Medicine and Polk County Medical Society will be held Wednesday, November 20, at Younkers Tea Room, with the following program: Traumatic Surgery, James Barrett Brown, M.D., associate pro-

fessor of clinical surgery, Washington University School of Medicine, St. Louis; and The Relation of Physiology to Modern Medicine, Andrew C. Ivy, M.D., of Chicago. Visitors from surrounding counties are urged to attend.

Pottawattamie County

Members of the Pottawattamie County Medical Society mourned the death of its president, Dr. Joseph L. Stech, during the regular meeting of that organization held Tuesday, September 17, at the Hotel Chieftain in Council Bluffs. The scientific portion of the program was the presentation of two illustrated lectures on hypertension delivered by Benjamin C. Russum, M.D., professor of pathology and bacteriology, Creighton University School of Medicine, Omaha; and Edwin M. Limbert, M.D., of the Council Bluffs Clinic, Council Bluffs.

Poweshiek County

Horace M. Korn, M.D., of the State University of Iowa, College of Medicine, furnished the scientific program for the Poweshiek County Medical Society, at a meeting held Tuesday, September 10 at the Masonic Temple in Montezuma. He discussed High Blood Pressure.

Sac County

Twenty-three doctors from Sac and adjoining counties met at the Hotel Park in Sac City, Thursday, September 26, to attend the regular meeting of the Sac County Medical Society. After the six-thirty dinner, Charles J. Baker, M.D., pediatrician of Fort Dodge, spoke on Upper Respiratory Infections in Childhood and Their Management. His talk was well received and provoked much comment. A short business meeting was held, and a resolution was passed advocating legislation for compulsory vaccination for smallpox in children of the preschool age.

H. N. Neu, M.D., Secretary

Van Buren County

Dr. Harry E. Woods of Birmingham who has practiced medicine fifty-eight years, was the honored guest of the Van Buren County Medical Society at a dinner at the Manning Hotel in Keosauqua, Wednesday, October 2. Dr. L. A. Coffin of Farmington presided as toastmaster over the program which included remarks by Dr. C. R. Russell of Keosauqua, Dr. Zenella E. Morris of Stockport, Dr. J. Fred Clarke of Fairfield, and Dr. Roscoe Pollock of Douds.

Warren County

The Warren County Medical Society held its second annual invitation dinner and meeting Tuesday, October 8, at the Lodge in Ahquabi State Park.

John H. Randall, M.D., associate professor of obstetrics and gynecology of the State University of Iowa, College of Medicine, Iowa City, was guest speaker for the occasion.

Washington County

Members of the Washington County Medical Society and their wives and guests enjoyed their annual turkey banquet at the Methodist Church in Wellman, Tuesday, September 24. At the close of the dinner the group adjourned to the auditorium where Professor A. Ellett of the State University of Iowa, spoke on Smashing an Atom.

Wayne County

Dr. Charles E. Lovett was host to the Wayne County Medical Society at the meeting held Tuesday, September 17, in Lineville. The program consisted of a round table discussion on Infantile Paralysis.

Wright County

Assembled in regular session for a dinner meeting Friday, October 11, at the Hotel Moore in Clarion, members of the Wright County Medical Society heard Harold Swanberg, M.D., of Quincy, Illinois, in an illustrated lecture on The Treatment of Cancer by the Use of Radium.

Iowa and Illinois Central District Medical Association

The winter meeting of the Iowa and Illinois Central District Medical Association will be held Friday evening, November 15, in the Gold Room of the Blackhawk Hotel in Davenport, Iowa. At 7:45 p. m. Rieber C. Hovde, M.D., of Davenport, will give a short paper on Statistical Analysis of 115 Consecutive Operations on the Biliary Tract. At 8:00 p. m. the guest speaker of the evening, Donald Guthrie, M.D., of Sayre, Pennsylvania, associate professor of surgery, Graduate School of Medicine, University of Pennsylvania, Philadelphia, will address the organization on The Diagnosis of Diseases of the Thyroid Gland and Their Treatment. Dr. M. J. Brown of Davenport will introduce Dr. Guthrie. The discussion will be opened by Dr. H. P. Miller of Rock Island, Illinois; Dr. Walter Matthey of Davenport; and Dr. D. B. Freeman of Moline, Illinois.

James Dunn, M.D., Secretary

PERSONAL MENTION

Dr. Lester A. Royal of West Liberty was recently elected Governor of District 132 of Rotary International, by delegates representing the 5,000 Rotary Clubs of the world at the annual international convention in Havana, Cuba. He will hold office until the 1941 convention in Denver, Colorado, next June.

Dr. Emmett L. Hawkins, radiologist at Mercy

Hospital, Council Bluffs, has announced his retirement after twenty-eight years of medical practice.

Dr. E. E. Shaw of Indianola spoke at the biennial meeting of the Wisconsin Conference of Social Workers, held in Milwaukee, Wisconsin, Friday, September 27. His subject was "Experiences with Medical Care of Relief Clients in Rural Iowa Counties".

Dr. Felix A. Hennessy of Calmar, who has practiced in that community for thirty-two years, has given up his practice and left for Minneapolis where he will take a special course in public health work at the University of Minnesota.

Dr. Lawrence E. Pierson of Sioux City recently delivered a paper before the Seventeenth Annual Meeting of the North-Central Section, American Urological Association, in Milwaukee, Wisconsin. His paper was on "Unilateral Fused Kidney with Bifid Ureter".

Dr. Morris E. Freeland, formerly of Callender, has located in Manilla, where he will take over the practice of Dr. Edward M. Mark.

Dr. Edward W. Thielen of Waterloo, was guest speaker for the Toledo Lions Club, Wednesday, October 9. Following a six-thirty dinner he addressed the group on "Heart Problems of the Business Man".

Dr. George W. Anderson of Early, after forty years of active medical practice, twenty-six of which have been in Early, has announced his retirement. His practice will be taken over by Dr. John W. Gauger, who was graduated in 1939 from the State University of Iowa, College of Medicine, Iowa City. Dr. Gauger has just completed his internship at the Louisville City Hospital, Louisville, Kentucky.

Dr. Martin J. Joynt of Le Mars spoke for the Marcus Rotary Club at its regular meeting Tuesday, September 24, on "Foreign Bodies in the Trachea, the Esophagus and the Lungs, and Their Removal".

Dr. Carl G. Clark, after three years' practice in Shenandoah has moved to Sioux City, and established offices in that city.

Dr. Robert A. Stewart, superintendent of the State Hospital at Independence, addressed the Dubuque Rotary Club Tuesday, October 8, on "The Importance of Mental Hygiene".

Dr. Sebastian A. Carnazzo, who has been associated with Dr. Roman J. Fisch in Le Mars for the past several years, has disposed of his practice to Dr. Fisch, and moved to Monterey, California, where he will enter the practice of medicine with his brother, Dr. William A. Carnazzo.

Entering Army Service

As a result of the national defense program many of our members have already been called to serve in various parts of the country and many more will undoubtedly receive similar notification. We hope to record all these changes of address and the following list includes the removals up to October 1.

Roy J. Allen of Sumner to Salt Lake City, Utah
Paul J. Amlie of Tripoli to Fort Knox, Kentucky
Sidney Brody of Ottumwa to Fort Snelling, Minnesota

Francis K. Burnett of Clarinda to Fort Snelling, Minnesota

Thomas E. Corcoran of Rock Rapids to Camp Ripley, Minnesota

Daniel S. Egbert of Atlantic to Fort Snelling, Minnesota

Charles W. Ihle, Jr., of Cherokee to Fort Snelling, Minnesota

William R. Krigsten of Sioux City to Fort Snelling, Minnesota

John R. Morrison of Carroll to Fort Snelling, Minnesota

Elmer M. Smith of State Center to Camp Meade, Sturgis, South Dakota

A. Bryce Stearns of Des Moines to Camp Meade, Sturgis, South Dakota

Lysle H. Whitmer of Wilton Junction to Fort Sill, Oklahoma.

MARRIAGES

Miss Betty Jane Van Ackeren of Humphrey, Nebraska was united in marriage to Dr. Eugene J. Maire of Vail, on Tuesday, September 17, at St. Francis' Catholic Church in Humphrey, Nebraska. Miss Van Ackeren is a graduate of Creighton Memorial St. Joseph's Hospital School of Nursing, Omaha. The young couple will live in Vail, where Dr. Maire has been practicing for the past three years.

The marriage of Dr. Ruth Wolcott of Spirit Lake, and Otto William Fischer of Okoboji, took place Sunday, September 29, at the Methodist Church in Clear Lake. They will live in Spirit Lake, where Dr. Wolcott has practiced for the past eight years, and where she plans to continue in her medical career.

DEATH NOTICES

Bailey, Frederick William, aged sixty-one, formerly of Cedar Rapids, died October 11 at the home of his daughter in Manhasset, Long Island, New York. He was graduated in 1905 from the State University of Iowa, College of Medicine, and had long been a member of the Linn County Medical Society.

Blair, Samuel Ellsworth, of Alford, aged seventy-three, died October 4 at the McKennan Hospital in Sioux Falls, South Dakota, of a heart attack after

an extended illness. He was graduated in 1894 from the State University of Iowa, College of Medicine, and at the time of his death was a Life Member of the Lyon County and Iowa State Medical Societies.

Cremin, William Joseph Slocum, of Sioux City, aged fifty-nine, died September 18 following several weeks' illness. He was graduated in 1906 from the University of Illinois, College of Medicine, Chicago, and had long been a member of the Woodbury County Medical Society.

Leir, Charles Nicholas Olsen, of Des Moines, aged seventy, died September 22 at the Veterans Hospital in Des Moines of a heart ailment. He was graduated in 1901 from Drake University College of Medicine, Des Moines, and at the time of his death was a Life Member of the Polk County and Iowa State Medical Societies.

Reed, Charles Sumner, of Agency, aged seventy, died October 4 after failing health for the last two years. He was graduated in 1902 from Drake University College of Medicine, Des Moines, and at the time of his death was a member of the Wapello County Medical Society.

Wildish, Reginald Myron, of Webster City, aged fifty-five, died suddenly October 1 following a heart attack. He was graduated in 1911 from the University of Nebraska, College of Medicine, Omaha, and at the time of his death was a member of the Hamilton County Medical Society.

AMERICAN MEDICAL WOMEN'S ASSOCIATION

The mid-year board meeting of the American Medical Women's Association is to be held at the Hertzler Clinic in Halstead, Kansas, Saturday, December 7, 1940, with Dr. Irene Koeneke as our hostess. There will be medical, neurologic and surgical rounds in the morning, followed by the board meeting in the afternoon. For those who can stay over Sunday, December 8, arrangements have been made for visits to the Wichita hospitals. All medical women are welcome.

Gail McClure, M.D., Chairman
Press and Publicity Committee

INTERPROFESSIONAL MEETING

The North Central Iowa Veterinary Association will sponsor, on behalf of the Interprofessional Association, a meeting to be held in Fort Dodge, Thursday, November 21. At 8:00 p. m. a round table discussion will be held on the following subjects: Bang's disease in cattle, brucellosis in swine, and undulant fever in man. Under the leadership of A. A. Schultz, M.D., of Fort Dodge, four physicians and four veterinarians will be allowed fifteen minutes to discuss the subjects assigned to them.

HISTORY OF MEDICINE IN IOWA

Edited by the Historical Committee

DR. FRANK M. FULLER, Keokuk
DR. JOHN T. McCLINTOCK, Iowa City
DR. R. T. LENAGHAN, Clinton

DR. TOM B. THROCKMORTON, Des Moines
DR. WALTER L. BIERRING, Des Moines
DR. HENRY G. LANGWORTHY, Dubuque

Alexander S. Begg, M.D. - - 1881-1940

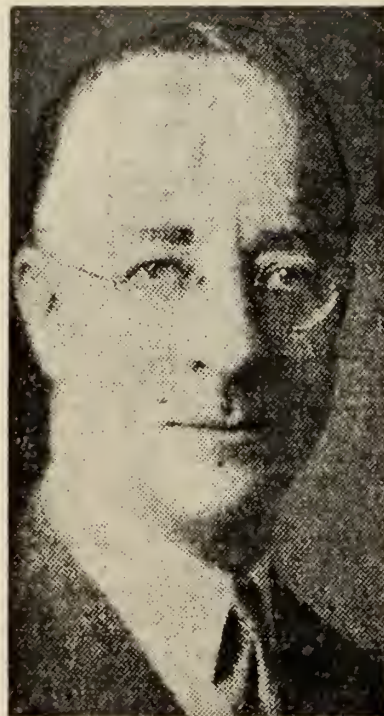
AN APPRECIATION

The many Iowa friends of Dr. Alexander S. Begg will be sincerely grieved to learn of his death from coronary thrombosis on September 26, 1940. An Iowan by birth, he attained early leadership in medicine and education in his native state, and became a widely recognized authority on medical education in the United States and Canada. At the time of his death he was dean of the Boston University School of Medicine, which position he had held for seventeen years.

Dr. Begg died in his sleep early in the morning and only a few hours before he was to have attended an assembly of the school of medicine welcoming new students. Dr. Daniel L. Marsh, University President, turned the assembly into a memorial service for Dr. Begg. Born at Council Bluffs, Iowa, May 23, 1881, he was educated at Collegiate Institute, Sarnia, Ontario, and at Drake University, Des Moines, receiving his doctor of medicine degree from the latter institution in 1907. Following his graduation in medicine, he held successively the positions of instructor, assistant professor and professor of pathology, histology and embryology at the Drake University Medical School from 1907 to 1913, when the school was merged with the College of Medicine of the State University of Iowa. In vacation periods during 1911 and 1912 he was a teaching fellow in anatomy at the Harvard Medical School. As a medical teacher in Iowa he left the impress of his scientific spirit and inspiring personality on all students and colleagues with whom he came in contact.

After leaving Iowa he became instructor in comparative anatomy at Harvard Medical School from 1913 to 1918, when he was appointed dean of the Harvard Graduate School of Medicine. After

a brief period as professor of anatomy for the Carnegie Institute he joined the medical faculty at Boston University in 1921 as professor of anatomy. In 1923 he was made dean of the medical school.



ALEXANDER S. BEGG, M.D.

Dr. Begg was prominent for many years in medical military affairs, being an active member of the Association of Military Surgeons. During the World War he organized Base Hospital 88 at Camp Dodge, going with it overseas as com-

manding officer. His war service covered a period of two years and four months, of which eleven months were spent in France. Entering the service as first lieutenant he attained the rank of colonel in 1919. Until his death he was a colonel in the Medical Reserve Corps. In August of this year he was named Massachusetts Chairman of the American Medical Association's National Committee on Medical Preparedness.

He was elected permanent secretary of the Massachusetts Medical Society in 1935 and a member of the editorial board of its official journal. During the past fourteen years the writer was privileged to be associated with Dr. Begg on the National Board of Medical Examiners. He became a member in 1926, serving as examiner in anatomy, and during the last ten years as a member of the executive committee of the Board. He was also the chairman of the subsidiary examining board in Boston. Our last meeting was the twenty-fifth anniversary dinner of the National Board in New York on June 12, and there was little thought that the parting handclasp was the final farewell.

His society affiliations indicate his varied scientific and professional interests. In addition to membership in his district, state and American Medical Associations, he was a member of the Association of Medical Colleges, serving on its executive committee from 1929 to 1932; the American Association of Anatomists; the American Association of University Professors; the Association of Military Surgeons and the American Association for the Advancement of Science. He was elected to membership in Phi Beta Kappa Society by the Drake University chapter in 1926, and he was a member of Alpha Kappa Kappa medical fraternity and the Harvard Club of Boston.

Dr. Begg was a frequent contributor to scientific and professional journals, and deeply interested in sports, especially amateur and professional hockey. Dr. Begg was a widower, his wife, the former Grace Waer of Des Moines, having died in 1931. He leaves three children: John of Hudson, New York; Barbara, a student at Boston University, College of Liberal Arts; and Dr. Charles Begg, now serving an internship in a Providence, Rhode Island, hospital.

By annual visits he maintained a continued interest in Iowa medicine, and the ties of friendship with former colleagues kept him an Iowan throughout the years. The charm of his fellowship and fine qualities of character will always be a treasured memory.

W. L. B.

STATE DEPARTMENT OF HEALTH

(Continued from page 544)

REGARDING THE PNEUMOCOCCUS STUDY COURSE

Announcement was made in the October number of the Journal, page 492, of a Pneumococcus Study Course, to be held at the Department's State Hygienic Laboratory, Iowa City. Dates set for this course are Tuesday, Wednesday and Thursday, November 12, 13 and 14, 1940.

Thus far twenty-three persons, nearly all of whom are laboratory workers, have through letter or return of a registration form indicated their plans to attend the course. The three-day meeting is arranged primarily for those who have not previously participated in a pneumococcus study course. Others planning to attend and whose names have not as yet been sent in, are requested to notify the State Department of Health by or before Wednesday, November 6.

Added consideration will be given at this year's Pneumococcus Study Course to the following:

1. Test for determination of the blood level of sulfapyridine.
2. Laboratory aspects of blood culture.
3. Mouse inoculation as an aid in type identification of the pneumococcus.

The place of meeting will be the Medical Laboratories Building, due east of the University Hospital. The southwest entrance leads directly to the office of Doctor Barnes on the second floor; here registration will take place and information may be obtained relative to rooms in private homes, if desired.

PREVALENCE OF DISEASE

Disease	Sept. '40	Aug. '40	Sept. '39	Most Cases Reported From
Diphtheria	11	24	21	For State
Scarlet Fever	101	56	96	For State
Typhoid Fever	9	16	13	For State
Smallpox	1	3	17	Johnson
Measles	75	70	21	Dubuque, Polk, Webster
Whooping Cough ..	104	105	51	Dubuque, Plymouth, Cedar, Webster
Brucellosis	20	26	21	For State
Chickenpox	27	10	13	For State
German Measles ...	4	1	1	For State
Malaria	5	12	20	Allamakee, Montgomery, Scott, Wayne
Mumps	47	44	22	For State
Pneumonia	43	40	16	For State
Poliomyelitis	422	174	35	Black Hawk, Polk, Allamakee, Boone, Decatur, Woodbury, Hardin, Winneshiek
Rocky Mountain Spotted Fever	2	12	0	Buchanan, Lee
Tuberculosis (Pulmonary)	2	2	43	For State
Tularemia	2	4	4	Appanoose, Muscatine
Gonorrhea	173	150	135	For State
Syphilis	209	204	281	For State

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- LIQUOR, THE SERVANT OF MAN**—By Walton Hall Smith and Ferdinand C. Helwig, M.D. Little, Brown and Company, Boston, 1940. Price, \$2.00.
- THE FOOT AND ANKLE**—By Philip Lewin, M.D., associate professor of bone and joint surgery, Northwestern University Medical School. Lea and Febiger, Philadelphia, 1940. Price, \$9.00.
- PRINCIPLES OF HEMATOLOGY**—By Russell L. Haden, M.D., The Cleveland Clinic. Second edition, thoroughly revised. Lea and Febiger, Philadelphia, 1940. Price, \$4.50.
- ARTHRITIS AND ALLIED CONDITIONS**—By Bernard I. Comroe, M.D., instructor in medicine, University of Pennsylvania. Lea and Febiger, Philadelphia, 1940. Price, \$8.50.
- TWELVE AGAINST ALCOHOL**—By Herbert Ludwig Nossen, M.D., New York. Harrison-Hilton Books, 420 Madison Avenue, New York, 1940. Price, \$2.50.
- MODERN DERMATOLOGY AND SYPHILOLOGY**—By S. William Becker, M.D., associate professor of dermatology and syphilology; and Maximilian E. Obermayer, M.D., assistant professor of dermatology and syphilology, University of Chicago. J. B. Lippincott Company, Philadelphia, 1940. Price, \$12.00.
- GETTING READY TO BE A MOTHER**—By Carolyn Conant van Blarcom. Fourth edition. The Macmillan Company, New York, 1940. Price, \$2.50.
- OBSTETRICS AND GYNECOLOGY**—Edited by Fred L. Adair, professor of obstetrics and gynecology, University of Chicago. Two volume illustrated set. Lea and Febiger, Philadelphia, 1940. Price, \$20.00.
- MANAGEMENT OF THE CARDIAC PATIENT**—By William G. Leaman, Jr., M.D., assistant professor of medicine, Woman's Medical College of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940. Price, \$6.50.
- THE INJURED BACK AND ITS TREATMENT**—Edited by John D. Ellis, M.D., Chicago. Charles C. Thomas, Springfield, 1940. Price, \$5.50.
- PHYSICAL DIAGNOSIS**—By Ralph H. Major, M.D., professor of medicine, University of Kansas. Second edition, revised. W. B. Saunders Company, Philadelphia, 1940. Price, \$5.00.
- THE NEW INTERNATIONAL CLINICS, Volume III, New Series Three**—Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940.
- PHYSICAL DIAGNOSIS**—By William Nance Anderson, M.D., associate clinical professor of medicine, University of Southern California, School of Medicine, Los Angeles. Lea and Febiger, Philadelphia, 1940. Price, \$4.75.
- MEDICAL NURSING**—By Edgar Hull, M.D., clinical professor of medicine, Louisiana State University School of Medicine, New Orleans. F. A. Davis Company, Philadelphia, 1940. Price, \$3.50.

BOOK REVIEWS

SYNOPSIS OF OBSTETRICS

By Jennings C. Litzenberg, M.D., professor emeritus of obstetrics and gynecology, University of Minnesota Medical School. The C. V. Mosby Company, St. Louis, 1940. Price, \$4.50.

In this short volume the author presents a complete outline of the entire obstetric specialty. As one would suspect, all unnecessary details are omitted, and attention is given to the more practical features encountered in ordinary practice.

The manner of presentation is almost identical to that of larger texts. Beginning with anatomy, physiology of menstruation and embryology, the reader is taken through the well known factors common to all gestation. Prenatal care is beautifully handled and the chapter on "The Pelvis from the Obstetric Standpoint" is of special value. In order the management of pregnancy, labor and the puerperium are discussed. The toxemias of pregnancy, along with complications involving the circulatory, digestive, genito-urinary, nervous and endocrine systems, are systematically handled. The chapter on obstetric surgery is unusually brief, and not enough space is given to some of the operative procedures discussed. All essential features are presented in numerical order, with brevity the keynote throughout. All controversial subjects of irrelevant nature are minimized and the author constantly attempts to develop good conservative obstetric judgment in the reader.

The reviewer feels that this abstract would be of value to anyone doing obstetrics and particularly internes or hospital residents. There is no redun-

dancy and all indications and therapeutic factors are well summarized. This does not replace the longer texts, but presents a good review of the entire subject and is invaluable when the consensus of best obstetric opinion must be obtained in a hurry.

E. J. D.

DERMATOLOGIC THERAPY IN GENERAL PRACTICE

By Marion B. Sulzberger, M.D., and Jack Wolf, M.D., New York Postgraduate Medical School and Hospital, Columbia University. The Year Book Publishers, Chicago, 1940. Price, \$3.50.

Although there has been a plethora of new texts on dermatology and syphilology, this book serves a very definite need, for it is the first time an attempt has been made to compile a manual of skin diseases especially for the student and the practitioner. This has been done in a precise, clear and easily understandable manner with a minimum of unnecessary details.

The authors have recognized the fact that the general practitioner is compelled by circumstance to treat about ninety per cent of the skin diseases he sees, and therefore they have attempted to make it possible for him to do so intelligently by describing the more common diseases which comprise this large percentage, and by presenting detailed management, prescription and usable technic. Rare and unusual skin diseases are not even mentioned and special technics, such as x-ray and radium therapy

and electrolysis, which should be left to the specialist, are mentioned but not described in detail.

This book should be an invaluable aid to the general practitioner and a worthwhile addition to any medical library.

J. W. Y.

PRINCIPLES OF SURGICAL CARE

By Alfred Blalock, M.D., professor of surgery, Vanderbilt University School of Medicine. The C. V. Mosby Company, St. Louis, 1940. Price, \$4.50.

In this monograph the author has dealt rather exhaustively with principles of surgical care, including a discussion of shock and related subjects. Anesthesia and various anesthetic agents are discussed at some length, giving both the author's opinion and those of other authorities. Surgical technics and the treatment of surgical wounds are discussed. Disorders of the circulatory system, including heart disease and such problems as thrombosis and embolism are given consideration. Shock or peripheral circulatory failure is discussed in all its phases. Various metabolic and nutritional disturbances, important in the treatment of a surgical patient, receive due attention. As previously emphasized, the various subjects are discussed fully, both from the author's viewpoint and from the viewpoint of numerous investigators. As a result the bibliography attached to each chapter is quite complete.

D. W. C.

GYNECOLOGICAL AND OBSTETRICAL PATHOLOGY

By Emil Novak, M.D., associate in gynecology, The Johns Hopkins Medical School. W. B. Saunders Company, Philadelphia, 1940. Price, \$7.50.

In obstetrics and gynecology, as perhaps in no other field of medicine, there has been a long standing need for a comprehensive textbook of pathology. More than that, there has been an urgent need for a work which would combine and correlate the clinical, endocrinal and pathologic aspects of obstetric and gynecologic lesions.

In this recently published book, the author clearly and concisely presents the subject of obstetric and gynecologic pathology. Probably one of the most commendable features of this text is the manner in which the clinical, biologic and endocrinal considerations are presented with reference to the various pathologic conditions. The current concepts of the endocrine glands in their relationship to the pathology of the female genitalia receive ample discussion.

Throughout the book, the material is presented in an orderly, readable, well organized manner. The text is profusely illustrated with excellent photomicrographs which have been carefully chosen as representative of the various lesions. The pathology of the female genitalia is discussed from the standpoint

of the normal histology of the organs, the histogenesis of the lesion, the gross and microscopic descriptions of the lesion, and the clinical and endocrinal characteristics. The author has succeeded in restricting to a minimum references to other authors and works, thus adding greatly to the readability and general interest of the text.

There is no doubt that this book is the best in its field, and one which can be recommended without reservations to the profession. It should prove extremely useful to the student and interne in their basic obstetric and gynecologic training. It should prove equally valuable to older practitioners seeking to keep abreast with the newer concepts of contemporary medicine.

A. W. B.

NEW AND NONOFFICIAL REMEDIES, 1940

Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1940. American Medical Association, Chicago, 1940. Price, \$1.50.

Each year a revised list of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January first is published in book form under the above title. The book contains the descriptions of acceptable proprietary substances and their preparations, proprietary mixtures if they have originality or other important qualities, important nonproprietary non-official articles, simple pharmaceutical preparations, and other articles which require retention in the book.

A list of articles and brands accepted by the Council, but not described, is included in the book to cover simple preparations or mixtures of official articles (U.S.P. or N.F.) marketed under descriptive, non-proprietary names for which only established claims are made. Diagnostic reagents which are not used in or on the human body, and protein diagnostic preparations are not included in New and Nonofficial Remedies unless the determination of the status of these products by the Council has been requested by the distributor; if such products are found to be marketed in accordance with the Council's rules, they may be included in the list of undescribed, but acceptable articles.

New and Nonofficial Remedies is a practical and condensed text of pharmacology and therapeutics; it contains scientifically elaborated standards for all accepted nonofficial drugs; its index to distributors is a list of manufacturers, a large number of whose products have met the Council's high standards; its bibliographic index is a storehouse of references to reports which have been made mainly on unaccepted and unacceptable drugs; its prefatory material contains the Council's "Rules," a time-tested and reliable set of basic principles for the furtherance of scientific and rational medicine.

SYNOPSIS OF PRINCIPLES OF SURGERY

By Jacob K. Berman, M.D., assistant professor of surgery, Indiana School of Medicine. The C. V. Mosby Company, St. Louis, 1940. Price, \$5.00.

Used as a guide to the study of surgery for a definite group of students, this book should be of value. However, it would seem that readability should be a consideration and probably one-fourth of the material is in very fine print footnotes, which leads not only to extra eye strain but to confusion of the train of thought since the reader must necessarily skip from text to footnote frequently.

Many pages are ably devoted to physiologic topics, such as acid base balance, interchange of body fluids, etc., and, although they are no doubt of importance to the practice of surgery and all other branches of medicine, it seems that they could be relegated to a textbook on physiology and thus leave more than two meager pages for the discussion of such a common and important surgical entity as appendicitis. There are concise outlines of treatment, such as the treatment of shock, pathologic classifications and numerous tables which should be useful to the medical student, and in this field the book will find its greatest usefulness.

A. B. S.

NEOPLASTIC DISEASE

By James Ewing, M.D., professor of Oncology at Cornell University Medical College. Fourth edition revised and enlarged. W. B. Saunders Company, Philadelphia, 1940. Price, \$14.00.

This new edition of Dr. Ewing's classic presentation of neoplastic diseases has just been published. The previous edition, a masterpiece, has been on the market now for twelve years, during which time many new contributions have been made on neoplastic diseases from a multitude of sources, physics, chemistry, physiology, pathology, clinical medicine, genetics and treatment. Dr. Ewing has most ably presented all the latest facts and principles. Not only has much new material been added, but almost every subject previously presented has been rewritten and revised. There is a loss of some historical material; and although a few old plates have been omitted they have been replaced with new, more descriptive pictures and microphotographs, and some thirty-five additional ones are included.

The general plan of the book remains the same. The approach to tumors, both malignant and benign, is logical and orderly, covering definition, incidence, etiology, histologic aspects, signs and symptoms, characteristics, clinical course, effect upon other parts and systems of the body, and numerous plans of treatment.

The theory has long existed that tumors fell into a limited number of grand classes in which the forms occurring in the several organs were so nearly related as to be virtually identical. As a result the majority of practicing physicians regarded all cases of general classes of tumors as equivalent conditions without regard to the organ involved, and they treat the members of each class alike. Dr. Ewing analyzes the many factors which meet in the inception of tumors. He stresses the dependence of the clinical course on the histologic structure, and traces the histogenesis and contrasts the clinical features that are so often characteristic of different tumors.

Part I, General Oncology, comprising the first nine chapters, has many revisions and new material. Later statistical studies are presented, as well as the later theories on special etiology of tumors, and the work in experimental cancer research. Part II, Special Oncology, the remaining forty chapters, takes up the different types of tumors, beginning with fibromas. This chapter presents a reclassification of fibromas, and is more descriptive. Many subjects are discussed in more detail than in the previous edition, and a few new ones are presented for the first time in view of later studies, including experimental work, myositis, glomus, angiomas, synovium, monocytic leukemia, new hormonal relations, fibrosing adenomatosis, plasma cell mastitis, Brenner tumors, tumors of the Islands of Langerhans, nasal passages, adult multicystic adenocarcinoma of the testis, carcinoma of the lung, Pancoast's tumor, acanthosis nigricans, sunlight cancer, Paget's disease, anilin carcinoma of the bladder, fetal adenoma of the thyroid gland, pituitary basophilism and many others.

This is truly an outstanding book, and one which should be in every physician's library, since cancer is becoming more paramount in practice and daily life.

J. L. B.

ASTHMA AND THE GENERAL PRACTITIONER

By James Adams, M. D. Williams and Wilkins Company, Baltimore, 1940. Price, \$2.00.

This little text impresses the reviewer with the necessity of a careful investigation into all types of asthma. The author has presented his experiences in a dynamic and direct manner.

The eleven interesting chapters include the types of asthma, toxicosis, the relation of the adrenal glands, nature, allergy, psychologic factors, the nose and treatment. The chapter dealing with therapy includes many means which the writer has personally instituted with success.

The author succeeds in simplifying a problem that is so often exhausting to the clinician.

J. W. C.

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STATE AND CITY WIDE PLANS FOR THE CARE OF THE PREMATURE INFANT*

JULIUS H. HESS, M.D.
Chicago, Illinois

I wish to express my thanks for this opportunity of talking to the members attending the University of Iowa postgraduate course on the subject of "The Premature Infant".

All matters pertaining to the care of these small infants have interested me greatly during the past quarter of a century. The results which we have experienced have been most encouraging. I am sure that a review of the vital statistics covering the newborn infants in Iowa and Illinois cannot help but convince us that we are making a very considerable progress in lowering both morbidity and mortality rates among prematurely born infants. Most strikingly is this being done in the case of all newborn infants, more especially during the past five years.

Fewer Babies Born in Iowa and Illinois. If we review the statistics covering the birth rate in our states, it becomes evident that if we wish to stabilize our population, we must give every viable infant its opportunity for developing normally both in mind and body. Let us for a moment think of these figures and try to evaluate their meaning to us. In 1930 the birth rate per 1,000 population in Illinois was 20.5, in 1935 it was 14.3, and in 1939 it was 14.8. In Chicago the birth rate for 1930 was 17.2, in 1935 it was 14.3 and in 1939 it was 13.6 per 1,000 population. These figures represent a decrease of 28 per cent in the number of babies born in the state of Illinois, and of 21 per cent in Chicago in this short period of time. In Iowa the birth rate in 1930 was 17.3, in 1935 it was 16.5, and in 1939 it was 17.4.

*Presented before the Postgraduate Course on the Care of the Newborn and Prematurely Born Infant sponsored by the State University of Iowa, College of Medicine, the State Department of Health, and the Committee on Child Health and Protection, Iowa City, September 17, 1940.

Fewer Babies Lost. Prematurely born infants, as reported in past statistics, represent only about four to six per cent of our live births. Since we are now including all infants with a birth weight of less than 2,500 grams, future statistics will include, I believe, a higher percentage of all newborn infants as being premature. It is my belief that the reduction in mortality rates among these small infants in Chicago during the past ten years has been a worthwhile effort, not only in the actual saving of lives, but also in giving these infants a far better start in life than could possibly have been the case under less favorable circumstances. However, the greatest result which we have experienced is the reduction in mortality rates among all newborn infants in their first year, as evidenced by the fact that the mortality rate among all newborn infants per 1,000 live births in the United States registration area dropped from 64.6 in 1930 to 48.0 in 1939. In Illinois it was 55.8 in 1930 and only 37.4 in 1939. There has, therefore, been a saving in Illinois of more than eighteen infants among every 1,000 live births, or approximately 33 per cent in less than ten years. In Iowa the corresponding figures were 53.9 in 1930 and 38.8 in 1939, a reduction of 28 per cent. In 1938 the mortality rate in forty-five states throughout the United States ranged from 36.0 to as high as 69.0 per 1,000 live births, and in 1939 the range was from 35.4 to 66.9. In three states in 1938, South Carolina, Arizona and New Mexico, the rates were 80.0, 99.0 and 109.0 respectively, and in 1939 they were 66.4, 95.5 and 109.3. I make special reference to these three states because of the tendency of lay publications often to present only the unfortunate side of the picture without analyzing the results or appreciation of some of the underlying factors, such as type and nationality of the population affected and the relation of high mortality rates to the attendant at delivery. In these three states, as well as in others in which there is a low income white, Negro and Mexican

population, many deliveries are conducted by non-medical attendants.

TABLE I
CITY OF CHICAGO
MORTALITY RATES AMONG ALL INFANTS—1934 to 1939

Year	Under 1 Year of Age Rate per 1,000	Under 1 Month of Age Rate per 1,000
1934	47.7	30.9
1935	40.1	27.5
1936	38.5	25.3
1937	37.8	25.2
1938	33.7	22.4
1939	31.3	21.8

TABLE II
CITY OF CHICAGO
MORTALITY RATES AMONG PREMATURE INFANTS
1935 to 1938

Year	Reported as Premature	Deaths	Mortality Per Cent
1935	1862	690	42.6
1936	2031	518	25.5
1937	1938	521	26.9
1938	1962	437	22.3

Programs for Premature Infants Benefit All Babies. City, county and statewide programs for the care of premature infants seem to be the order of the day in efforts throughout the United States to reduce infant mortality rates. Of these we will speak more in detail later. All of them, however, with few exceptions, originated in either the local or state boards of health. The notable exception is the program inaugurated by the Medical Society of Milwaukee County in establishing and maintaining their Premature Bureau and its Maternal Milk Laboratory. To this undertaking the Milwaukee Visiting Nurses Association has given its full cooperation. The ultimate idea, of course, in all instances is that of service to the community and the medical profession.

While very satisfactory progress has been noted in the lowering of infant mortality rates throughout the United States, especially in the last five years, there is still room for improvement. The results noted in the past few years are attributable to a closer understanding and cooperation between the practicing physician and public health officials. In both Illinois and Iowa this is true to a remarkable degree. As stated, there has been a steady decline in the number of total deaths during the first year of life. On the whole, however, there has not been a satisfactory decrease in the death rate in the first month of life which accounts for nearly one-half of the total loss of life in the first year. The situation as pertains to the first day and first week after birth has, until recently, shown only a minimum decrease in the mortality rate. In the past, more than one-half of the deaths during the first month have been among the premature infants. We may therefore state that the fields in which the least has been accomplished lie in the saving of infant lives in the first days and month, and also in those

cases in which there was complicating pathology during pregnancy. In order fully to demonstrate the results of good cooperation between the practitioners at large and hospitals with the two large premature infant stations in Chicago, the one at Sarah Morris Hospital with a capacity for 25 infants and the other at Cook County Hospital, which has cared for as many as 68 at one time, I take the privilege of quoting statistics from the two institutions.

TABLE III
3540 INFANTS ADMITTED TO SARAH MORRIS HOSPITAL
1922 to 1939

Year	Admissions	Graduated %
1922-24	94	44.9
1925-27	310	57.4
1928-30	555	73.9
1931-33	664	77.2
1934-36	832	74.8
1937-39	1088	74.5

SARAH MORRIS HOSPITAL MORTALITIES

	1935-37	1938	1939
Admissions.....	921	380	392
Total Deaths %.....	25.38	26.8	20.9
Excluding 24-Hour Deaths %.....	9.6	12.3	6.88
Excluding 48-Hour Deaths %.....	.....	5.03	3.31

The Chicago Plan—The Chicago Citywide Plan, I believe, was the first to attempt to fulfill all the requirements for the care of the premature infant, and was more especially aimed at meeting the needs of the low-wage class of a large metropolitan city. The Chicago Plan was an attempt to place at the disposal of the profession of Chicago all of the special features provided for the care of the premature infant by the Sarah Morris Hospital Station, which was established in 1922. The citywide plan came into effect in 1934, twelve years later. All of the Sarah Morris features are now incorporated in the Chicago Plan, namely:

1. A twenty-four-hour ambulance service for the conveyance of the premature infant to a hospital station where that may be thought necessary.

2. Premature ward care where oxygen and other types of emergency therapy are available. While all general hospitals should be so equipped to care for the infants born in their own wards, only a few institutions can sacrifice the necessary nursing personnel and space for receiving such patients from the outside. No maternity nursery is willing to receive infants born outside of the institution into its clean nurseries. The Sarah Morris Station receives about 75 per cent of its infants from very modest homes, and these infants are either received free of cost or for a

minimum fee. For those who can afford to pay, a moderate hospital rate is charged. It is, therefore, one of the essentials to the success of the project that there be a sliding scale which meets the possibilities for payment for all who are sent in, the majority coming through the Boards of Health of Chicago and neighboring towns. The Sarah Morris Hospital averages approximately 25 infants. In the Cook County Hospital as many as 68 premature infants have been in the station at one time, and there all services are rendered without cost.

TABLE IV
PREMATURE INFANTS

2383 INFANTS ADMITTED TO COOK COUNTY HOSPITAL
1932 to 1939

Year	Admissions	Graduated %
1932	138	50.8
1933	233	62.7
1934	253	65.8
1935	294	75.2
1936	255	77.26
1937	343	79.0
1938	426	76.9
1939	441	77.6

3. The nursing service, both in the field and in the hospital, must be rendered by a personnel with special training in the care of the premature infant. This is essential.

4. Breast milk should be available to all when required. In communities where breast milk is not available when the mother is unable to supply it, the physician will of necessity have to resort to artificial feeding.

5. The field nursing is of inestimable value in cutting down hospital days, which spells economy for service and an increase in the number of infants who can be handled by any one institution. The promotion of breast milk secretion in the home through this field nursing service usually means that an infant who is going home to receive breast milk from its mother, can be discharged from the hospital at least one to three weeks sooner than the infant who is going home on an artificial feeding. The education of the mother through the early visits of the field nurse to the home during the child's stay in the hospital, and the visit made immediately preceding its return to the home, are of the greatest educational value to the families among whom you practice.

6. The supplying of a simple type of heated bed for use in the home when the baby is to be kept in the home, or again the sending of such a bed home with the infant at the time of its discharge, will prevent morbidity among the infants, especially respiratory tract infections which formerly filled our wards and which are

always of grave consequence in these young infants.

7. The plan emphasizes throughout, and justly so, the fact that the patient always remains the patient of his private physician.

According to reports received by the Children's Bureau,¹ twenty-eight states, Hawaii and the District of Columbia have already made or have submitted plans for making special provisions for the care of premature infants as part of their maternal and child health programs under the Social Security Act. Usually the first step taken by the states has been to study, often in cooperation with the state medical associations, the influence of prematurity on the state infant mortality rate and to make a survey of existing provisions for the care of prematurely born infants in various parts of the state. Since the state programs have been concerned chiefly with problems in rural areas and areas in special need, most states have found existing provisions for premature infants in these areas inadequate. In general, the programs developed by the states to deal with the problem consist of three parts, an educational program, the provision of field nursing services and the provision of equipment in the form of incubators.

The educational programs have included the providing of special training in the care of premature infants for members of health department staffs at such centers as the Sarah Morris Hospital and the Cook County Hospital in Chicago and the Boston Lying-In Hospital. The member receiving the training, usually a supervising nurse, is thus in a position to teach modern methods of care to the staff public health nurses and also to advise hospital nursing staffs in this field. At Sarah Morris Hospital 141 field nurses sent by the Chicago Board of Health or members of the supervisory staff of hospitals in Chicago have had service in our station. Forty-one nurses from seventeen other states and Ontario have had training in the station. Some of these were from individual hospitals; most of them were filling staff positions in the nursing service of their respective states. Pediatricians on state staffs have carried on educational programs for local health officers and have secured the interest and cooperation of practicing physicians in providing improved care for premature infants. The care of the premature infant has been discussed in postgraduate courses for physicians in a number of states. Members of our staff have participated in such courses in New York, New Jersey, North Carolina, Tennessee, Wisconsin, Utah, Montana, Arizona and New Mexico.

In addition to these educational efforts which are basic, the health departments have provided the services of public health nurses to assist practicing physicians to care for these infants in their homes where necessary, and particularly to teach members of the family the special methods of caring for them. Members of the state staff have given assistance to the administrators of hospitals in planning for better facilities for the care of premature infants and in teaching their nurses modern technics in this field. A few states have made provision for pediatric consultant services for rural physicians.

The Massachusetts Program. The most complete plan is that now being carried on by Massachusetts. During 1937 the Commonwealth of Massachusetts initiated its statewide program on the care of premature infants, its objective being the reduction of the premature death rate and the improvement of standards for the care of premature infants. They provide transportation through the local boards of health to nearby hospitals adequately equipped to care for infants weighing five pounds or less who cannot adequately be cared for in their homes. Hospital maintenance is provided free for indigents by the local Boards of Public Welfare. In Massachusetts about three-fourths of all births occur in hospitals. The hospital center part of the program is statewide outside of Boston. Forty-eight centers have been established. The hospitals are selected with a view toward strategic location and the grade of service given by the hospital. The nursery supervisors of the hospitals which have been accepted as premature centers are given a two-weeks' course at the Boston Lying-In Hospital. The Department of Public Health pays the tuition of the nurse and also her traveling and living expenses during this course. A consultant nurse from the Department of Public Health is available for consultation services to nursery supervisors in the hospital centers.

The New York Program. The New York State Department of Health is also inaugurating a statewide program. Fourteen New York nurses have been in attendance at the Sarah Morris Hospital Station. Special centers have been in operation in Albany and Syracuse since the first part of 1938. Schenectady, Utica, Troy and other cities have followed a similar program. In other areas, portable heated beds have been made available for loan purposes for infants cared for in the home in rural districts. Transportation is provided for taking the infants to nearby hospitals.

What Constitutes Prematurity in the Infant?

At the Annual Meeting of the American Academy of Pediatrics held in New York City on May

19, 1935, the following resolution was passed in an attempt to define prematurity: "For statistical purposes and comparison of results of care, a uniform standard for diagnosis of prematurity is important. A premature infant is one who weighs 2,500 grams or less at birth (not on admission) regardless of the period of gestation. All liveborn premature infants should be included, evidence of life being heart beating or breathing." It is well known that the younger and smaller the fetus when leaving the uterus the greater are the difficulties to be overcome in carrying out required body functions necessary to life, and therefore the consequent lower vitality.

Benefit to the Infant of a Prolonged Gestation. Clifford² has estimated the expected intrauterine weight gains per week to be: fifth lunar month, 120 to 150 grams; seventh lunar month, 180 to 240 grams; ninth lunar month, 300 to 360 grams. The value of continuing intrauterine life as long as possible is well evidenced by the mortality rate based on weights taken from the records at the Sarah Morris Station.

TABLE V
PREMATURE INFANTS—MORTALITY BY WEIGHT
3148 INFANTS—SARAH MORRIS HOSPITAL

Weight in Grams	Per Cent
Less than 750.....	95.65
750 to 1,000.....	82.88
1,000 to 1,250.....	59.3
1,250 to 1,500.....	46.2
1,500 to 2,000.....	23.1
2,000 to 2,500.....	12.2

It can be easily realized, therefore, that the addition of two to four weeks to intrauterine life is of great importance in reducing the mortality rate. It is also to be remembered that the younger the fetus the graver the danger of an inability of the cardiovascular, respiratory and gastro-intestinal tracts and the endocrine glands to function normally. The younger the fetus the greater the danger that intracranial hemorrhage may occur. In our first 386 autopsies, 168 infants had intracranial hemorrhages, in most instances sufficiently destructive to be capable of resulting in death.

Obstetric Analgesia. Any analgesic given to the mother affects the baby to some degree. Irving in a study of 500 consecutive deliveries where no anesthesia was used, found that only ten per cent of the babies required resuscitation. In a series receiving scopolamine-morphine in the first stage of labor, he found that 60 per cent had to be resuscitated, and in a group in which phenobarbital was administered, 40 per cent required resuscitation. These figures refer to a study of deliveries of full-term infants. One can easily realize the increasing danger from various analgesics given in excess to the mother in the case of the prematurely born infant. Immediately after respiration

has been initiated in the infant suffering with extreme narcosis, oxygen or oxygen-carbon dioxide therapy should be instituted.

Provision for the Premature Delivery. In case of expected premature labor immediate preparation should be made for the reception of the infant into a proper environment. The preparation should not be delayed until labor has begun, because many premature infants will be lost. If the proper facilities cannot be furnished in the home, the mother should be persuaded to enter a hospital before confinement. Avoidance of mechanical trauma incident to delivery, chilling of the infant during transportation and exposure to infection are important factors in reducing mortality rates.

Methods of Resuscitation. The possibility of asphyxiation of the premature infant must be borne in mind throughout the entire labor. Any accumulation of secretions or aspirated material should be removed by inverting the child and gently wiping the mucus from the throat or by aspiration of the pharynx by means of a catheter, and in only the more extreme case by the careful use of a tracheal catheter. In the more extreme degrees of asphyxia a warm bath, never cool or cold, and the institution of artificial respiration by regular and very gentle compression of the chest followed by the administration of oxygen, may become necessary. Swinging and other forceful methods of inducing artificial respiration must never be practiced. The irritation of the catheter in the pharynx will frequently reflexly stimulate respiration. If the infant appears to be recovering spontaneously, it should be left alone. Administration of oxygen, about 120 bubbles per minute, may be of value if given through a catheter inserted in the nose or mouth or through a properly constructed mask. If an oxygen chamber or hood is available, the child should be placed in an oxygen-air mixture of 40 to 50 per cent oxygen. All premature infants, whether or not they show signs of asphyxiation at birth, should be carefully watched for cyanotic attacks during the first days of life, since such attacks may develop suddenly and without warning. The most common causes are defective pulmonary circulation, congenital atelectasis, cardiac pathology or an intracranial hemorrhage. At other times they are precipitated by intra-abdominal distention interfering with cardiac or respiratory action. Oxygen therapy offers the best single method of resuscitation.

Tying and Section of the Cord. The time elapsing between the birth of the infant and the tying of the cord will depend on the general condition of the infant and to some extent on the obstetrician's ability to prevent chilling of the infant. In

the absence of marked asphyxia, it is well to allow the pulsation of the cord to become weakened or to disappear before ligation. This usually requires from one to five minutes, during which time the infant will receive from 30 to 60 cubic centimeters of blood from the placenta. This blood should be conserved, when it is possible to do so without risk. The cord should not be tied too closely to the skin. Great care must be exercised in tying the cord to prevent severing it with the ligature, something which is easily accomplished in the premature infant. The cord should be sufficiently long to allow for a second ligature.

Care of the Eyes. One per cent silver nitrate solution or 25 per cent argyrol should be used to prevent ophthalmia neonatorum. The nitrate of silver solution should be neutralized with a normal saline solution. Not infrequently the application of silver nitrate will result in some inflammatory reaction of the conjunctiva in the first six to twelve hours after its application. This is especially frequent in premature infants and is relieved by cold applications. It is not to be confused with the more serious specific ophthalmia which may develop on the second or third day. In all cases of doubt, a microscopic examination of the purulent discharge must be made. An old silver nitrate solution which has undergone decomposition should be avoided, because such solutions are far more prone to irritate the sensitive conjunctiva.

Care of the Skin. Pustular dermatitis, while relatively benign and usually not serious in the individual baby, is epidemiologically of great importance because it spreads easily and may assume an epidemic character in any nursery. There are three chief methods of caring for the skin of the newborn infant. In one method, after the blood and vernix caseosa are wiped off, the skin is anointed with ammoniated mercury of varying strength. After this the baby gets daily baths with either water or oil. Mineral oil, olive oil and commercial oils are most commonly used. Another method commonly employed is that of giving the baby an initial oil cleansing bath and thereafter daily oil or water baths. A third procedure which was first suggested about 1931 and largely popularized by the study of Sanford³ has attracted considerable attention and has been adopted in numerous hospitals. In this method only the excess blood is gently wiped off after birth. The vernix caseosa is not removed and the baby's skin is not handled except in cleaning about the eyes, mouth and ears and removing excessive amounts from between the folds of the skin of the neck, axillae and groins. The buttocks are cleansed with sterile water after the diaper is changed.

No matter how the baby's skin is cared for, pustular dermatitis will invariably occur if a nursery is overcrowded, and if there is insufficient or inadequately trained nursing personnel. In order to obtain a true insight into the extent of an epidemic, it is necessary to check on all babies who had been discharged from the hospital during the time involved. Not infrequently an apparently normal baby is discharged, and in the next few days he may develop lesions. If one case of pustular dermatitis is found in a nursery, a check will often reveal other recent cases. The treatment of the individual case of pustular dermatitis is less important than the epidemiologic control, since in most cases the lesions heal by themselves. There is no specific treatment and each physician has his own preference. A great many different agents are used. Silver nitrate, ten per cent, or gentian violet, five per cent alcoholic solution, are among the best, applied after removal of the vesicle. One difficulty which must be overcome is the reluctance of many hospital authorities to call a dermatitis impetigo, even if pustular lesions are present, because a break in technic or poor nursing care is implied. This unwillingness or lethargy in the recognition of pustular dermatitis frequently leads to delay in proper isolation and thus increases the danger of an epidemic.

HOSPITAL NURSERY UNITS

Special equipment is necessary for premature infants, whether they are to be cared for in the obstetric or children's divisions of a general hospital. The lack of proper arrangement for their care in general hospitals throughout the country represents a striking lack of foresight. The equipment to be recommended is to a large extent dependent upon the method which is to be used for maintaining the body temperature of the individual infant. There are two general classes; first, the special nursery units in which ventilation, temperature and humidity are automatically regulated; and second, ordinary hospital nurseries in obstetric or pediatric departments in which the room temperature is fairly constant but which are without special means of ventilation and humidity control. In wards of the second type, individually heated beds must be supplied for the infants. They are also necessary for a limited number of the infants cared for in wards of the first type, because the smaller and more frail infants require a higher surrounding temperature than the larger and more mature ones. A combination of the superheated, regulated room with special beds for the exceptional infants is the ideal equipment. As yet, only a limited number of institutions have air-condi-

tioned units, so constructed as to meet the requirements of these small infants for the preservation of their body temperature, to maintain an optimum humidity and to provide a constant and definite change of air. Many new units for air conditioning are being introduced which, however, vary greatly in their efficiency. It must be remembered that maintaining and controlling temperature and humidity during the difficult seasons of the year offer serious obstacles to popularizing automatic control. This applies more especially in the summer months.

Equipment of the Station. It has been our desire to demonstrate that the care of premature infants can be accomplished in a practical manner in any well-organized obstetric department or children's hospital. A station should provide at least one or more rooms and as far as possible the following equipment: individually heated beds for small infants, bassinets for graduates, oxygen therapy units, heated dressing table, sink with bathing slab, shelves for toilet articles, supply closet, scale, high and low temperature registering thermometer, of wet and dry bulb types, hygrometer, time clock for recording feeding times, electric heater for emergencies, screens, electric refrigerator, transportation ambulance for premature infants, heated beds for home use (loaned to graduates for temporary use), ultra violet-ray lamp, and electric breast pump.

Nursing Staff. The selection of a personnel for the nursing staff of a unit established for the care of premature infants requires great care. Nurses assuming these responsibilities must be intensely interested in their work. They must be willing to make many necessary sacrifices while the infant is passing through the critical stages. They must, at all times, be prepared to meet the emergencies of asphyxia and to counteract the spells of cyanosis. These two factors in themselves require almost constant vigilance; otherwise, the work of previous days will go unrewarded. They must use good judgment to prevent over- and under-feeding, because the size of the individual meal will to a very large extent be governed by the physical condition of the infant at the time of feeding. In no other class of patients is it so necessary to change or modify, on short notice, previous orders for diet. The nurse must know the indications for and the methods of administering catheter feeding, colonic flushing, tubbing and the application of artificial respiration. In hospital wards, the constant changing of nurses, so frequently necessary in meeting the curriculum for nurses' training in general hospitals, is found to be a great disadvantage. Better results are obtained when the nurse in charge has

under her care assistants who need not necessarily be nurses in training, but preferably young women who are especially preparing themselves for the care of young infants, and who can be relied upon to stay in the station for long periods of time. Such women become expert in the handling of these infants, can frequently feed them with a minimum excitement of their pharyngeal reflexes, and soon learn to bathe and give them their exercise and massage; these latter are essential care in the day's routine as the infant progresses. The ideal nursing staff for such a station is, therefore, one consisting of a well-trained supervising nurse and a corps of assistants desiring this training who are willing to remain in this service for a long period of time, together with a limited number of nurses in training.

BREAST MILK FEEDING

Human milk is the food of choice for the premature infant and this applies more especially to small infants. A regular feeding schedule must be instituted. The feedings of necessity vary as to number and size as well as to the quality of milk mixture.

The Mother. It is generally believed the possibilities of lactation on the part of the mother can be enhanced through a well-balanced diet during the last months of pregnancy. When this has not been possible, it becomes even more necessary that she be placed on a well-rounded diet during the puerperium. It is essential that her diet be well-balanced in Vitamins A, B, C and D, and iron. The first days are the danger period to successful breast feeding. The obstetrician provides for the mother his most solicitous attention; he has practiced his best obstetrics and has presented her with a normal, uninjured infant. His fears, if any, are centered on the possibility of postpartum complications in the mother. Not the least of these is his desire to avoid trauma to the nipples, with the further danger of secondary breast infection. Since most cracked nipples develop during the first four days, this is the important period for prophylaxis. A factor which should be recognized as a helpful aid to breast feeding is the application of the breast pump or hand expression in developing the retracted nipple.

The Infant. If the infant is strong enough to be placed at the breast he is left there for five minute periods during the first three or four days, or preferably he is given both breasts for even shorter periods. Simple depression of the lower jaw of the infant should be practiced at the conclusion of feeding to prevent trauma as the infant is being removed from the breast. In the presence of

cracked nipples the infant may well be taken off the breast temporarily, and hand expression or the breast pump should be used during that time to promote secretion.

Initial Feeding. There is often a desire on the part of both physicians and nurses to begin feeding the premature infant too soon after birth. The full-term infant is placed at the breast from eight to twenty-four hours after birth. Since the premature baby is small and weak, the natural tendency is to start feeding him even earlier. It has been our experience that too early feeding may often be the cause of aspiration pneumonia and is, therefore, to be avoided. The average premature infant does better if he is not fed for at least twelve hours after birth. Small premature babies (those weighing under 1,200 grams) are not fed until after thirty-six to forty-eight hours have passed. During this time the small premature baby receives physiologic salt solution, ten to twenty cubic centimeters subcutaneously, in the thighs, once or twice daily. Too large quantities may produce fatal shock through traumatization.

Amount of Food Required. There is likewise a definite tendency to overfeed the young premature infant. In the desire to have the infant gain as much as possible and as quickly as possible, overfeeding results. This is undoubtedly one of the important factors in the high mortality and morbidity rates found among premature babies during the first three to six weeks after birth. In feeding the premature infant, it is essential to establish a "food tolerance," inasmuch as the intestinal tract, as well as the other organs, are underdeveloped. This tolerance can best be established by feeding very small quantities of food and increasing the amount very slowly. The infant does best if we feed him the smallest amount of food on which he will gain weight rather than if we attempt to produce a rapid early gain. If the premature baby gains weight, no increase is made in the feeding that day. If he fails to gain, an increase of only one to two cubic centimeters in each feeding is made. During the first five to seven days no gain in weight is expected, because until this time the infant is not given enough food to produce a gain. The feedings of our premature infants are calculated entirely on a caloric basis. The babies usually require from 60 to 120 calories per kilogram each day to make them gain. If a premature baby is gaining on 60 calories per kilogram (2.2 pounds), we do not increase the feeding. Many of our premature babies receiving only 60 to 70 calories per kilogram have a very satisfactory weight curve. We have not found it necessary to give more than 100 calories per kilogram until the in-

fant is at least one month old. However, if a premature baby needs more than 100 calories per kilogram after the first month, we do not hesitate to give him from 110 to 120 calories per kilogram. The type of feeding described, which we term "minimum feeding," is of value since it first, prevents abdominal distention with resulting dyspnea and possible cyanosis; second, prevents diarrhea; third, decreases vomiting; and fourth, results in more consistent gain in weight.

Infants Too Weak to Nurse at the Breast. When the feedings are well taken, and if syncope or cyanosis has not developed, these infants can be fed without being removed from the heated bed. The medicine dropper method is one of the best for feeding weak infants, and is simple of application. As in all other methods, the food should be administered very slowly. Soft rubber tubing should be slipped over the end of the dropper to prevent injury.

Catheter feeding (gavage) is also recommended. It may be necessary if the swallow reflexes are poorly developed. Each infant should have its own marked catheter. Circles should be drawn around the catheter with indelible ink, four and five inches above the tip. (No. 8 or 10 French.) As a funnel the glass barrel of a syringe can be used. The infant should lie flat on its back either in or out of bed, with the head in a straight line facing upward. The barrel should be empty when the catheter is passed. If the stomach is distended the air should be allowed to escape after the catheter is passed. The infant should be fed slowly with minimum elevation of the barrel which will cause the milk to flow. At the end of the feeding when the catheter is to be withdrawn the catheter must be firmly compressed in order to prevent aspiration of milk into the larynx.

Gastric Capacity. In a postmortem study of thirty-four stomachs under pressure of a column of fifteen cubic centimeters of water, the average-sized fetal stomach was estimated as follows:

24 weeks	5 c.c.
35 weeks	8 c.c.
28 weeks	10 c.c.
32 weeks	18 c.c.
36 weeks	25 c.c.
40 weeks	45 c.c.

The stomach of the premature infant on a diet of breast milk is usually found empty at the end of one and one-half to two hours; that of the artificially fed infant requires a considerably longer period of time, depending upon the nature of the food administered, even in the case of feeding with predigested milk.

Feeding Schedule. Each infant offers an individual problem. The amount of milk varies with the development and the stomach capacity. General rules for infants weighing 1,000 to 2,500 grams call for no food or water during the first twelve hours, and thereafter the following schedule:

13th hour, water.....	2 to 6 c.c.
16th hour, water.....	2 to 6 c.c.
18th hour, breast milk.....	2 to 6 c.c.
20th hour, water.....	2 to 10 c.c.
22nd hour, breast milk.....	2 to 10 c.c.
24th hour, water.....	2 to 10 c.c.

Some small infants are not fed for twenty-four to forty-eight hours. These must necessarily receive some fluids parenterally during their first few days. Physiologic saline, Ringer's or Hartmann's solutions are used in amounts from ten to twenty cubic centimeters once or twice daily. All of the small infants receive from two to eight cubic centimeters of blood intramuscularly at least once. In the presence of any type of hemorrhage Vitamin K is administered (see hemorrhage). From the second to the twenty-first day the breast-fed infant is on a three-hour schedule, receiving seven to eight feedings a day. Orange juice, fish and liver oils, and iron may be started by the second to fourth week. The following schedule may be helpful:

Day	2nd	4th	6th	10th	20th
Per cent of weight.....	1/50	1/40	1/20	1/10	1/6
Ounces per pound.....	1/3	2/5	3/4	1 1/2	2 1/2
Calories per pound.....	6	8	15	30	50

Artificial feeding. Jacobi has said, "The most important ingredient in the formula is the physician's brains." If artificial feeding becomes necessary the physician will therefore select that type of milk feeding with which he is best acquainted. Varieties of milk include:

1. Simple boiled milk dilutions.
2. Soft curd milks.
3. Lactic acid milk.
4. Chymogen or Rennet milk.
5. Evaporated milk.
6. Reconstructed milks.

All except reconstructed milks require added carbohydrate, two to six per cent.

Prophylactic Foods and Therapy. Vitamins A, B, C and D should be fed to the infants between the second and fourth week of life in addition to those contained in the small amount of breast milk which they are able to take. The dosage per pound of body weight should be two to four times that which would be fed to the full-term infant. The

requirement for Vitamin C proximates that necessary for the full-term infant and may be given in the form of ascorbic acid, twenty to forty milligrams daily, or as orange juice, beginning with one-half teaspoon and gradually increasing to a full ounce twice a day. If possible, Vitamin D should be started by the third week; it is best administered in the form of the more concentrated oils, starting with two drops daily and increasing gradually to twenty drops daily by the fourth to the eighth week. Vitamin B₁ can be fed as thiamin chloride. We have also from time to time used Vitamin E, we believe with benefit. It is fed in the form of wheat germ oil or as wheat germ meal. To meet the iron requirements, raw egg yolk is added to the diet in the proportion of one yolk to a quart of milk. Liver extract and/or ferric ammonium citrate are good preparations. The infant may receive each day one cubic centimeter of a ten per cent solution of ferri et ammonii citras for each pound, or two cubic centimeters for each kilogram of body weight. Liver in combination with iron is a good preparation. Each level teaspoon of the Lilly's formula contains approximately 3.75 grams (58 grains) of liver fraction and 0.65 grams (ten grains) of ferrous ammonium citrate. The initial amount should be one-fourth gram (four grains) daily, and can be increased to four grams (one dram) daily in older infants. Either the egg yolk, iron or liver preparations should be introduced into the diet by the fourth week.

As early as the third week, our infants are exposed to ultraviolet rays by use of a quartz lamp. The time of exposure varies with the indications in the individual case. At first these exposures should be limited to fifteen seconds, and it is rarely necessary to give more than two-minute exposure three times a week. Overexposure may result in irritability, vomiting and increased body temperature. The exposure also varies with the amount of cod liver oil or other antirachitic oils prescribed.

There is still considerable doubt as to the need of the premature infant for certain hormones, gland secretions and antibodies, which are transmitted from the mother to the infant during intrauterine life. We have attempted to supply some of these from our human serum bank obtained from pregnant women, using this serum in place of the intramuscular administration of blood which has been a routine procedure. The advantage of such intramuscular injections remains open for further study.

EMERGENCY THERAPEUTIC MEASURES

Many infants will require shock therapy for hypothermia, dehydration, inanition and infection.

Hypodermoclysis. The subcutaneous introduction of normal saline, Ringer's or Hartmann's solutions in amounts of ten to sixty cubic centimeters, varying with the size and age of the infant, at regular intervals will often assist in bridging a crisis. The solution should be administered slowly at body temperature in order to avoid further shock. *This is an emergency measure and not a routine procedure.* We have seen severe shock, following the use of excessive amounts.

Oxygen Therapy. The value of the administration of oxygen in concentrations higher than that found in fresh air (20 per cent) has long been appreciated in various respiratory and to some extent in cardiac conditions in which anoxemia was present. In the care of premature and newborn infants in the past, oxygen therapy has been more or less crudely administered because of the absence of suitable oxygen-containing chambers. For this reason, the administration has been largely carried on through the use of nasal catheters and more or less poorly fitting masks, and consequently there was an extreme waste of oxygen, the concentration varied greatly, and much difficulty was experienced in attempts at long-continued administration. All infants weighing under 1,200 grams, those showing respiratory and cardiac embarrassment and all others whom it was believed might be benefited by oxygen therapy, are placed in an oxygen chamber in our Station. Most of the infants are kept there for more than twenty-four hours; some infants may require one or more weeks. Most infants are kept in a 40 per cent oxygen atmosphere (ordinary air is 20 per cent). In cases where the mother had received morphine-scopolamine anesthesia, which resulted in a toxic state in the infant, carbon dioxide five per cent, and oxygen 95 per cent is recommended.

Hemorrhage. The vascular walls in the premature infant are immature and the infants are subject to hemorrhage following relatively slight trauma. This accounts in a large part for the frequency of intracranial hemorrhage in these infants. The intracranial hemorrhages, if massive, or if there is destructive injury to the brain itself, are usually followed by early death, as noted in 168 cases among our first 385 autopsies on infants dying in our Station. The prothrombin clotting time of the blood is of even greater importance in its relationship to hemorrhage. Kato and Poncher⁴ found that the average prothrombin time of the first day of life, as determined by the micromethod described by Kato, is 43.2 seconds for the normal, mature infant and 46.5 seconds for the premature infant. By the sixth to the tenth day of life, the majority of infants showed an average normal pro-

thrombin time of 25.0 seconds. In both clinical and subclinical cases of hypoprothrombinemia in the newborn child, the prothrombin clotting time is markedly prolonged. Kato and Poncher state that when the prothrombin time is prolonged beyond two minutes, by the micromethod, a presumptive diagnosis of subclinical hypoprothrombinemia must be made. Such an abnormal prolongation of prothrombin time signifies a state of Vitamin K deficiency and replacement therapy is indicated. After a single administration of the vitamin in doses varying from one to ten milligrams, the prothrombin time dropped within six hours to almost normal levels. The effect of the vitamin is evidenced both by cessation of the hemorrhage and shortening of the prothrombin time. More recently a number of preparations of Vitamin K have become available for clinical use. They may be classed into two main groups: the fat-soluble preparations which are administered by mouth, and the water soluble preparations which may be administered intramuscularly and subcutaneously or even intravenously. When Vitamin K is not available the intramuscular administration of human blood offers one of the outstanding therapeutic measures. The amount to be used will vary from four cubic centimeters in small infants to fifteen cubic centimeters or more in large infants. The injection of blood is to be repeated at intervals of from twelve to twenty-four hours if the progress is not satisfactory.

Other Emergency Measures. In the presence of cyanosis, syncope and other symptoms of cardiac and respiratory failure, one or more of the following measures may be instituted while the infant is in the oxygen chamber. Inhalation of aromatic spirits of ammonia, one or two drops of which, on cotton or gauze, are held before the nostrils; further one drop of a 1:1000 nitroglycerine solution may be placed on the tongue, or one cubic millimeter of 1:1000 or one cubic centimeter of 1:10,000 solution of adrenalin hydrochloride, may be given hypodermically. It may be necessary to continue the adrenalin as often as every hour at first and then at less frequent intervals over a period of one or more days. The adrenal glands are probably not very active in these small infants. The use of camphor, caffeine, atropin, or other respiratory stimulants hypodermically does not offer much practical help. Overstimulation by the use of drugs is dangerous. We have used coramine a number of times by mouth, but cannot as yet express a definite opinion as to its value.

THE SICK BABY

Apathy. A marked degree of apathy was present in all infants who died, especially those in the

group with intracranial hemorrhage. It was present to a lesser degree in all small and debilitated infants.

Fever. Overheating is a most common cause for rise in body temperature of the premature infant. Therefore, the bed should be cooled temporarily in the presence of any rapid rise in the rectal temperature of the infant in order to ascertain whether the hyperthermia is due to the temperature within the bed.

Jaundice. A severe type of jaundice is a frequent symptom of the premature state. There are two types of severe jaundice, that which occurs during the first week or two of life, and the type which becomes increasingly evident during or after the second week. In the former, among the fatal cases, intracranial hemorrhage, complicated by infection is a frequent combination. In the second group, infection is usually the predominating factor.

Vomiting. Severe, persistent vomiting may be present in cases of intracranial hemorrhage, more especially of the infratentorial type, and in systemic infections. Abdominal distention, gastric irritability and pylorospasm may result in repeated attacks. Toxemia of pregnancy is a common cause of vomiting in the newborn infant. About 75 per cent of all premature infants regurgitate some food during their first three days. Vomiting is treated by an immediate decrease in feeding. Food should be decreased to the point where the infant retains all of its feeding. The food is again increased very gradually. It is sometimes advisable to discontinue water between feedings until vomiting ceases. Infants who vomit often do better on small concentrated feedings than on diluted milk mixtures. While on a concentrated diet, water or tea may be given between feedings. Administration of fluids subcutaneously may become necessary.

Abdominal Distention. This is always looked for in any premature infant who is vomiting and, if present, is relieved either by enema or lavage.

Diarrhea. The infants should be starved for from twelve to fourteen hours, depending on the severity of the diarrhea. Ringer's solution, half strength, or weak tea is given by mouth (one-sixth to one-fifth of the body weight) during the twenty-four hours. More recently, the writer has initiated complete starvation with withdrawal of water as well as milk for twenty-four hour periods with good results. While starving the infant, subcutaneous saline solution at regular four to six hour intervals should be administered. Feedings are then started. The premature infant is fed every three hours, beginning with a very

small amount, three-fourths to two drams (three to eight cubic centimeters) usually, of one-half skimmed lactic acid milk and one-half breast milk, or a dilute artificial feeding (boiled skim or whole milk, evaporated milk, etc.). Casein may be added to these to increase the protein content. No carbohydrates are added at first. Feedings are increased by one-half to one and one-fourth drams (two to five cubic centimeters) as the infant's reaction to the increase in diet warrants. During this gradual increase, from one to two ounces (20 to 60 cubic centimeters) of half-strength Ringer's solution or tea is given between each feeding, or a saline solution is injected subcutaneously. It has been found that one dram to one-half ounce (four to fifteen cubic centimeters) of whole blood given intramuscularly is of great value to these dehydrated and toxic infants. It is usually given daily during the emergency period. Of even greater advantage is intravenous transfusion through an arm or foot vein. This requires testing for compatibility and a good technic. The longitudinal sinus should not be used. At no time should more than one-fiftieth of the body weight of the infant be administered intravenously.

Twitchings. These occur at times in infants suffering from various conditions. They are no more frequent in the cases in which hemorrhage occurs than in others. This is probably explained by the early death among the patients with severe intracranial hemorrhage.

Generalized Convulsions. In the very young infants these are most often due to intracranial hemorrhage and infection; anoxemia and gastrointestinal upsets rank next in importance. In the older premature infants, tetany should always be considered a possible cause, since this condition develops at a much earlier age in the premature than in the full-term infant.

CONCLUSIONS

1. The falling birth rate throughout the United States makes it imperative that every effort be made to lower morbidity and mortality rates in infancy.

2. The results of cooperation among physicians, hospitals and state and local officials are evidenced by the steadily decreasing rate of deaths in the first year of life.

3. Much is still to be accomplished in the task of lowering the death rate of all infants in the first week and first month of life. This is especially true of premature infants who represent approximately 50 per cent of all mortality during the first month.

4. Every general hospital, as well as the special-

ized one, should provide for the minimum requirements of premature infants born in the hospital. Every need can be provided with only a minimum outlay for equipment.

5. Every city of moderate size should provide suitable quarters for the care of the premature infant who is born at home and who therefore cannot be cared for in the so-called clean hospital nursery.

6. The providing by the city or state of a transportation service to a special station or the furnishing of a simple type of heated bed for home use has been a forward step in the care of premature infants.

7. Field nursing service, through personal instruction, can render invaluable aid by encouraging the mother to retain her breast milk supply. Breast milk in the home will shorten the infant's hospital days and aid in the prevention of illness after graduation.

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THE USE OF BURBOT-LIVER OIL INTRAMUSCULARLY FOR OCULAR AVITAMINOSIS A

H. C. KLUEVER, M.D., C. H. COUGHLAN, M.D.
and LORAN M. MARTIN, M.D., Fort Dodge

Vitamin A deficiency appears to be fairly common. Pett¹ found general avitaminosis A in 52 per cent of 1,600 subjects examined; the percentage was higher among the unemployed. Jeghers² reported an incidence of 35 per cent among medical students; 12 per cent of the entire group showed clinical manifestations. Jeans and Zentmire³ detected a disturbance of dark adaptation in 21 per cent of a group of 213 children; about one-half of the 21 per cent were kept in the hospital and given cod liver oil. After a period averaging twelve days (four days to six weeks), all showed improvement in their dark adaptation.

The daily requirements of Vitamin A have not been determined. Jeghers⁴ states 6,000 international units are necessary, but Edmund and Clemmesen⁵ believe 700 to 900 units are sufficient. The Technical Commission of the League of Nations⁶ recommends 2,000 to 4,000 international units and suggests that "such a supply is afforded by a daily intake, for example, of 500 millilitres of

whole milk, one egg, 25 grammes of butter and a medium sized serving of a green, leafy vegetable." Lewis and Haig⁷ found that 135 to 200 units (approximately 25 units per kilogram of body weight) covered the minimum Vitamin A requirement for infants under their observation. Steffens, Blair and Sheard⁸ studied three healthy adults and found their dark adaptation was not affected significantly during the course of a dietary regimen very low in Vitamin A content (100 to 300 international units daily) for periods of 44, 160 and 190 days respectively. Microscopic examination of the skin of the subject observed for 190 days showed changes which it is believed occur in the late stages of avitaminosis A. Pett¹ observed a number of people who could only be maintained on doses of 10,000 international units or more daily and suggested that faulty absorption might have been responsible.

Benedict and Wagener⁹ state avitaminosis A might result from deficient absorption from the intestinal tract or by increased consumption during growth or during a debilitating disease. Corneal lesions resembling marginal ulcers, indolent ulcers or rodent ulcers were treated by Yudkin, Orten and Smith¹⁰ by giving cod liver oil by mouth; some improved rapidly whereas others did not respond. From the histories of the cases it appeared that the intestinal tract might have been at fault. These patients were given Vitamin B complex in addition to the cod liver oil, and in a large proportion the ocular disturbances disappeared. Sydenstricker, Sebrell, Cleckley and Kruse¹¹ call attention to the possibility of a relationship between the functions of riboflavin and Vitamin A as suggested by the resemblance of the visual disturbances attributed to the lack of either of these two vitamins.

Willard¹² states that 95 per cent of the total body content of Vitamin A is present in the liver. Hepatic disease is a theoretic cause of deficient reserve, but proof is as yet lacking. Willard adds that chronic diarrhea, biliary obstruction, pancreatic dysfunction, celiac disease and other disturbances in fat metabolism might result in Vitamin A deficiency. Lewis and Haig⁷ observed two infants, each four months of age, who had avitaminosis A although their regular diets had been supplemented by large quantities of cod liver oil. The diagnosis was confirmed by necroscopic examination; in both infants there was found a cystic fibrosis of the pancreas which presumably had interfered with absorption of Vitamin A. de Haas and Meulemans¹³ complemented their usual treatment of xerophthalmia with subcutaneous injections of 0.5 of a cubic centimeter of Davitamon A

(Organon) containing 40,000 international units per cubic centimeter. Thomson, et al.,¹⁴ administered 100,000 international units of Vitamin A intramuscularly for night blindness and obtained immediate recovery.

The purpose of this report is to present the results of intramuscular administration of Vitamin A in the form of fortified burbot-liver oil* containing 20,000 international units per cubic centimeter; each subject was also given burbot-liver oil by mouth. Three of the patients had definitely restricted their intake of Vitamin A. Three other subjects had not restricted their diets and thought they had consumed sufficient amounts of butter, milk, eggs and green leafy vegetables. One of the latter individuals had taken cod liver oil daily for two years, having discontinued it only one month prior to being seen by us, and he still had a light threshold of eight minutes. The possibility of faulty absorption from the intestinal tract was suggested since his light threshold was reduced to normal limits by intramuscular administration of Vitamin A.

Light threshold, determined qualitatively with the Feldman¹⁵ adaptometer, was used as an index of Vitamin A deficiency in the subjects who had not restricted their diets. Feldman¹⁵ considers as pathologic all light thresholds of five minutes or longer. The light threshold in the three patients examined was from nine to ten minutes before intramuscular Vitamin A administration; after the treatment it ranged from two to three minutes. The ocular manifestations of the three patients who had definitely restricted their diets rapidly subsided after similar treatment.

CASE REPORTS

Case 1. R. J. B., a housewife, sixty-five years of age, was seen on June 1, 1940, complaining of extremely blurred vision. Her impairment of vision had become marked during the previous ten days but had been present to a lesser degree for approximately one month. Prior to that time there had been only slight impairment of sight. This lady had seen a charlatan and had been advised to follow a diet limited in milk, butter and eggs. She had adhered to this diet for approximately six months. No bleeding of the gum margins had occurred at any time. Past, family and social histories were irrelevant.

The vision corrected with glasses was 20/100 for each eye. The lids and lacrimal apparatus of

*Sterile fortified burbot-liver oil in one cubic centimeter ampules was supplied through the courtesy of Burbot-Liver Products Company, Baudette, Minnesota. All injections of the oil were made as deeply as possible into the gluteal muscles. Pressure with a sponge was applied for a few minutes in order to prevent seepage into the subcutaneous tissues. A two-inch twenty-gauge needle was used to inject the oil after it had been warmed to body temperature.

the right eye were normal; the conjunctiva was not injected but somewhat lusterless. The cornea, by biomicroscopy, was extremely hazy due to changes of its epithelium; these changes resembled in appearance those due to edema. Study of the aqueous, lens and iris was difficult because of the haziness of the cornea. The pupil measured 2.5 millimeters and reacted to light and accommodation; intra-ocular tension was 16 millimeters of mercury (Schiötz). The left eye was like the right in every respect. Examination of the fundus of either eye was impossible. The visual fields, studied by means of the Bjerrum screen, were concentrically contracted to a moderate degree.

The patient was given one cubic centimeter of fortified burbot-liver oil intramuscularly on June 1 and June 3; no other treatment was instituted. On June 7 the vision had improved to 20/20 O. D. and 20/25 O. S. and the visual fields had returned to normal. The haziness of the corneal epithelium had almost entirely disappeared. Each lens showed mild opacities in its periphery; the pupillary areas were clear. There was no fundus pathology in either eye. The intramuscular use of burbot-liver oil was repeated on June 7 and further use of Vitamin A was then restricted to 15,000 international units (burbot-liver oil) daily by mouth; a proper diet was advised at this time. The corrected vision on August 6 was 20/15 for each eye; vision at night had noticeably improved. There was no local reaction at any time from the use of burbot-liver oil intramuscularly.

Case 2. A. G., a housewife, thirty-eight years of age, was first seen on August 5, 1940. Two weeks previously she had received a corneal injury, being struck in the left eye by a twig. She was seen by an oculist a short time after the injury and treatment had resulted in healing, but thereafter on two occasions, each lasting a day or two, there had been a scratchy sensation and slight redness of the eyeball; these complaints were absent when she was seen by us. The vision of each eye was 20/20. The left cornea was grossly clear and there was no staining with fluorescein. A faint superficial corneal scar, one millimeter in diameter, just below the pupillary area was found with the corneal microscope; the epithelium appeared to be healthy. No treatment was advised.

The patient returned on September 17, complaining of almost weekly recurrent attacks of redness of the left eye. Each of these attacks were of several days duration; the last attack continued for four days. She had experienced a painful, scratchy sensation with lacrimation but no sticky discharge or matting of the lashes. There was no history of a new injury to the eye. A denuded area

2.5 millimeters in diameter was found on the left cornea located at the site of the old scar noted on the previous examination. The lacrimal passages were patent to irrigation. There was slight injection of the circumcorneal vessels but there were no floaters in the anterior chamber. On questioning the patient it was brought out that she had stopped using milk in her diet six months previously. The use of butter and cream had been restricted for several years because of gallbladder attacks; liver was never eaten. She had been eating eggs and carrots at least twice weekly.

Scopolamine and bichloride of mercury ointments were used in the eye and a pressure bandage was applied. Defatted milk and fortified burbot-liver oil were administered intramuscularly on September 17, 18 and 19. Milk, butter and burbot-liver oil were introduced into the diet. On September 19, the denuded area no longer stained with fluorescein. The patient continued on milk, butter and fish liver oil, and no further desquamation of the corneal epithelium occurred. There was no local reaction to the intramuscular injections of burbot-liver oil.

Case 3. A. C., a housewife, seventy-five years of age, was admitted to Mercy hospital on July 10, 1940. She had had poor vision for five years, more marked for the left eye. Her obesity had been extreme for at least ten years, her weight varying from 200 to 225 pounds. She refrained from eating butter and fats because of her obesity and she disliked milk. During the five years prior to admission to the hospital she had been treated for high blood pressure. Although she had not been acutely ill during this period, she had suffered from headaches and her general health had not been good.

During her first week at the hospital her blood pressure was reduced from 210/105 to 180/90. A cataract extraction was done on July 17. The postoperative course was uneventful and the patient was discharged from the hospital on July 30. She was seen at the office at semi-weekly intervals for two weeks. The scleral wound healed satisfactorily; the anterior chamber contained only an occasional floater, and there were no deposits on the posterior surface of the cornea, but the bulbar injection persisted. No corneal vascularization was seen at this time. On August 15, she was given one cubic centimeter of fortified burbot-liver oil intramuscularly and then she did not return to the office for ten days because of an acute upper respiratory infection.

When she returned on August 25 she stated that soon after the intramuscular injection the redness of the operated eye had subsided for about

five days and then gradually recurred. Examination showed the bulbar injection to be moderately intense and chiefly circumcorneal; the corneal microscope revealed blood vessels invading the corneal stroma along the postoperative scar and also at the limbus at eight o'clock. None of the vessels extended more than one millimeter into the clear cornea. Her vision corrected with a cataract lens was 20/25. There was only an occasional floater in the anterior chamber and no deposits on the posterior surface of the cornea. She was given 15,000 units of Vitamin A and three milligrams of riboflavin daily by mouth; one cubic centimeter of fortified burbot-liver oil was given intramuscularly on August 25 and September 1 and 10 without any local reaction resulting. The bulbar injection rapidly subsided and extension of the corneal vascularization was arrested. A cataract lens was prescribed on September 10.

Case 4. E. L. B., a housewife, thirty-nine years of age, was seen on September 25, 1940. She complained of photophobia while driving her automobile in bright sunlight, discomfort from glare of white paper while reading and writing, and night blindness. She had not knowingly restricted her diet in any manner and thought she had been eating sufficient amounts of butter, milk and eggs. Examination revealed a fairly well-developed and moderately well-nourished white female. The hemoglobin was 75 per cent (Sahli), the red cell count was 4,030,000 and the white cell count was 9,200. There was no corneal pathology; the irides appeared healthy and the media clear. No fundus lesion was found; pupillary reactions to light and accommodation were normal.

The light threshold was nine minutes. Fifteen thousand units of Vitamin A were administered daily by mouth and one cubic centimeter of fortified burbot-liver oil was given intramuscularly on September 25, 26 and 28. The light threshold was seven minutes on September 26 and four minutes on October 1. There was no local reaction to any of the intramuscular injections. The photophobia and night blindness subsided after October 1 and did not recur. The use of 15,000 international units of Vitamin A by mouth was to be continued indefinitely.

Case 5. S. C., a railroad switchman, twenty-six years of age, was seen on August 4, 1940. He complained of pain, redness and tearing of the left eye of two days' duration. In 1938 we had treated this man for a mild iritis of the right eye and except for that occasion he had never required the attention of a physician. He thought he had been eating as much butter, milk, eggs and green, leafy vegetables as the other members of his family; cod

liver oil had been taken daily from February, 1938 to June, 1940. Examination revealed considerable tearing but no discharge. The palpebral conjunctiva was moderately reddened and velvety and the vessels of the bulbar conjunctiva were mildly injected. A superficial marginal corneal ulcer one-half millimeter in diameter was present at nine o'clock. The remainder of the cornea appeared normal and did not stain with fluorescein. The anterior chamber was of normal depth and no floaters were seen. The lens and vitreous were clear and no fundus lesion was present. Examination of the right eye revealed no pathologic findings.

Cultures from the left conjunctival sac grew *Staphylococcus albus non-hemolyticus*. The corneal ulcer was treated with scopolamine and bichloride of mercury ointments three times daily. The eye was kept covered with a light dressing. During the next four days there was little healing of the ulcer. The treatment was supplemented by applying two drops of burbot-liver oil to the lower cul-de-sac five minutes before applying the ointments; hot boric acid compresses were applied for twenty minutes four times a day. Burbot-liver oil was administered by mouth; intramuscular injections of defatted milk were given daily. On August 20 the ulcer at nine o'clock was healed but a fresh ulcer had appeared at seven o'clock. The treatment was continued without results. The ulcer at nine o'clock recurred on September 1 and on September 7 a third ulcer appeared at eight o'clock. Soon the ulceration, one to three millimeters in width, extended along the limbus from seven to nine o'clock.

The light threshold on September 13 was nine minutes. Fortified burbot-liver oil was administered intramuscularly on September 13, 15, 18, 23, 29 and October 5 and three milligrams of riboflavin were given daily by mouth. The light threshold was seven minutes on September 18, five minutes on September 23, and two minutes on October 5. The corneal ulceration was entirely healed on October 1 and did not recur. There was no local reaction to the intramuscular use of burbot-liver oil.

Case 6. P. F., a housewife, forty-nine years of age, was seen on September 26, 1940. She had had approximately ten recurrent attacks of photophobia with slight injection and a scratchy sensation of the eyes during the previous two years. These attacks had lasted from two to four weeks, the last attack being present for two weeks before she was seen by us. Impairment of vision at night had existed for about six months. In 1934 she had had an attack of appendicitis which was compli-

cated with general peritonitis; her health had remained fairly good following her recovery. She had never restricted her diet and thought she had eaten sufficient amounts of butter, milk, eggs and green vegetables.

Examination showed only mild chronic injection of the bulbar and palpebral conjunctiva of the left eye and almost none of the right. The left cornea when seen with the corneal microscope showed many very small superficial punctate-staining areas; there were very few punctate areas in the epithelium of the right cornea and most of them did not stain. The pattern of the blood vessel loops at the limbus of the left eye was irregular, and vascularization of clear cornea had occurred at five o'clock. Further examination revealed nothing abnormal except that the light threshold was nine minutes.

Cultures from the conjunctival sac grew *Staphylococcus aureus*. Bichloride of mercury ointment and burbot-liver oil were used in the eyes. Three milligrams of riboflavin and 15,000 units of Vitamin A were administered daily by mouth, and one cubic centimeter of burbot-liver oil was injected intramuscularly on September 26, 28, 30 and October 8. The light threshold was reduced to five minutes on October 8 and to three minutes on October 19. The superficial punctate areas no longer stained in either eye on October 8 and were absent on October 24, by which time the photophobia had entirely subsided. There was no local reaction to the injections of burbot-liver oil.

COMMENT

Our studies of the effects of intramuscular administration of Vitamin A lead to the opinion that there is a definite place for this type of treatment when rapid correction of avitaminosis A is necessary as, for example, in corneal ulceration. When faulty absorption from the intestinal tract is suspected, this method should certainly be tried.

In all of our patients the response to this method of treatment was prompt. Case 1 which appeared to be an early xerophthalmia almost completely recovered in one week after 40,000 units were administered; the diet was not revised until after the effects of the intramuscular injections had been observed. Two other patients with a history of definite dietary restriction of Vitamin A also showed a prompt improvement of the ocular manifestations. In one of these two cases (Case 2) frequent recurrence of corneal desquamation apparently was controlled by burbot-oil injections after other methods of treatment had been unsuccessful.

Case 5 also failed to respond to treatment until

intramuscular Vitamin A therapy was instituted. In this instance adequate doses of cod liver oil had been administered for two years, only being discontinued two months prior to being seen; yet, the light threshold indicated avitaminosis A. The absorption of the vitamin from the intestinal tract must have been inadequate, or, if it were adequate, the storage of Vitamin A in the liver was faulty. Prior to the ocular disorders the general health had been good and an internist who had followed this case for two years was unable to find any cause for the avitaminosis. The pathologic pictures of Cases 3 and 6 were complicated by the presence of corneal vascularization. Riboflavin may have been chiefly responsible for the satisfactory result, but the possible relationship of the functions of riboflavin and Vitamin A suggested that they be used simultaneously.

SUMMARY

1. The recovery from various degrees of night blindness following intramuscular administration of fortified burbot-liver oil was satisfactory in the three cases in which the light threshold was determined.

2. The improvement of corneal ulceration and superficial punctate keratitis in two cases respectively coincided with the recovery from night blindness.

3. The improvement of one case which appeared to be early xerophthalmia was striking; vision improved from 20/100 for each eye to 20/20 O. D. and 20/25 O. S. in one week.

4. A case of recurrent corneal desquamation following injury appeared to be controlled only after the intramuscular administration of Vitamin A.

5. Corneal vascularization following cataract extraction, in one instance, responded favorably to the combined effects of riboflavin and Vitamin A.

6. There was no local reaction to the intramuscular administration of fortified burbot-liver oil.

711 Carver Building.

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OBSTACLES TO EFFECTIVE CONTROL AND PREVENTION OF SCARLET FEVER*

GAYLORD W. ANDERSON, M.D.
Minneapolis, Minnesota

Professor and Head of the Department of
Preventive Medicine and Public Health
University of Minnesota

The past few generations have witnessed a remarkable control over certain infectious diseases. Vaccination makes it possible for any community to fix its smallpox rate at whatever level it may desire. It may completely eradicate the disease through universal vaccination or, through neglect of vaccination, may treat itself to the luxury of unrestricted life, liberty and the pursuit of smallpox. Within the span of a single life typhoid fever has all but disappeared in communities where formerly it was one of the principal causes of death. In all civilized areas typhoid is being brought under control through methods of environmental sanitation. One may envision the day in the not too distant future when many of our largest states will be free from typhoid cases and deaths for extended periods of time. Theoretically there is no reason why this disease should not ultimately disappear from the face of the earth in some future century provided we can maintain our civilization against the onslaught of barbaric forces that, for the sake of the flush and exhilaration of momentary power, would destroy the fruits of centuries of progress and discoveries. Yellow fever and bubonic plague have been brought under

control in civilized areas even though the foci of infection seem so widespread that we can hardly envision the complete eradication of these diseases. Cholera, which less than a century ago spread unchecked throughout the North American continent leaving in its wake a ghastly toll of death and devastation, has disappeared from the western hemisphere. Tuberculosis has been reduced to levels that would have seemed Utopian to the health officers of a former generation. Diphtheria, which only a short time ago was the principal cause of death among school children, has become a rare disease in many places. A continued high incidence of diphtheria is rightly considered to be a reflection upon the excellence of the community health program and the health education of the citizens. Yet in the midst of all these triumphs we find that there has been no essential decline in the incidence of scarlet fever and that in spite of the efforts of our health departments the infection is as widespread as in former years. It is well, therefore, that we should examine some of the obstacles to the effective control and prevention of scarlet fever.

It should be emphasized at the outset that while the incidence of scarlet fever infection has apparently not declined, there has been a striking shift in the severity of the disease, and therefore the death rate. During the latter part of the last century, the prevailing form of scarlet fever in this country and western Europe was far more malignant than it is today. For reasons that we do not clearly understand this malignant form has been replaced by a mild type that rarely kills. This shift in the character of the disease has resulted in a diminution in scarlet fever mortality which is as great and as striking as the decline in diphtheria. At the same time it has given rise to a feeling on the part of some that a permanent shift in the character of the disease has occurred and that therefore there is little need for concern over the continued high prevalence of the milder form. It has even been suggested that the widespread prevalence of milder infections might be desirable, because the immunizing so achieved might reduce the likelihood of the reappearance of malignant cases.

While this is an interesting hypothesis, experience unfortunately teaches us there is no assurance that malignant infections will not recur. In former centuries we have seen comparable periods of mild scarlet fever, followed in each instance by the recurrence of the malignant type.¹ The early nineteenth century experienced a form which was apparently as mild as that of the present day but the end of the century saw malignant scarlet fever. Even today there are evidences of a recurrence of

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the severe form. During the past decade Poland and the Balkans have been the victims of a form of scarlet fever with a case fatality rate as high as ten to twenty per cent.² One might logically expect that these areas would serve as foci for the further spread of this malignant type of infection. The unsettled condition of Europe and the prospect of even further expansion of the areas of conflict would suggest that this spread, which could hardly have been prevented under normal circumstances, may occur with greater rapidity. It would be shortsighted, therefore, to take too much satisfaction from our present comparative freedom from malignant infection and to close our eyes to the possibility that the next few decades may see a recurrence of a severe form of scarlet fever. It is, therefore, imperative that we should examine the present obstacles to effective control in the hope that through such study we may find new methods of prevention.

When we refer to scarlet fever we have a mental image of a patient with a focus of infection and a characteristic erythematous rash. These two parts are essential to the clinical diagnosis of scarlet fever. In the absence of one or the other a diagnosis cannot be made on clinical grounds alone, however much one may suspect the condition. Yet experience shows that scarlet fever infection may exist without both of these signs. Those who have studied a milk-borne outbreak of scarlet fever have been immediately impressed with the high incidence of cases of sore throat without a rash among the adults who were consumers of the particular milk supply. The same streptococci may be isolated from these patients as are obtained from the children with clinically recognizable scarlet fever. Yet if any one of these cases of sore throat without rash had been seen without known relationship to cases of scarlet fever, we could not have made even a presumptive diagnosis of scarlatinal infection. In this same connection it is interesting to note in the early studies of the Dicks that whereas some of the human volunteers contracted typical scarlet fever after swabbing of their throats with the hemolytic streptococci, at least one other contracted merely the throat infection without a rash.

These differences are due to the complex nature of the scarlet fever process and the different degrees of resistance that may develop to its several components. The local process is an expression of the infection itself; the rash is due to the toxin which is given off by the streptococci and is carried throughout the body by the blood stream. Experience shows that human resistance to one of these components does not necessarily parallel that

to the other. Antitoxic resistance may be very readily established and is of frequent occurrence after a certain age of life. Unfortunately, however, anti-infective resistance is not equally great, as is shown by the existence of infection without rash. It is common knowledge that a streptococcal infection does not confer a high grade of protection against further streptococcal infections in subsequent years. Scarlet fever in childhood does not protect a mother against the risk of puerperal infection with streptococci.

This lack of antistreptococcal resistance comparable with the antitoxic resistance is one of the most fundamental obstacles to effective control and prevention. It means that coincidental with the clinically recognizable infection, there are certain unrecognized conditions due to the same organisms. The true incidence of such cases of scarlet fever infection without a rash is problematical. The studies of Gordon and his associates³ lead one to suspect that they may even be as frequent as are the cases that are clinically recognizable. To these patients who never show a rash must be added, however, the large group in which the rash is so fleeting that it escapes recognition by the parents or the physician, if the latter is even consulted. Since the clinical picture in the individual is conditioned by the relationship between the dose and virulence of the infecting organisms on the one hand and the ratio between anti-infective and antitoxic resistance on the other, it is apparent that the clinical picture in the human being is capable of a wide range of variability. Unfortunately, however, only the fairly severe cases are brought to medical attention and of these only those with a low level of antitoxic resistance are recognized as scarlet fever. We are thus in the anomalous position of applying our isolation and quarantine procedures to those persons only who have so low a level of antitoxic resistance that they develop a clinically recognizable scarlet fever. We do not discover the others and therefore permit them to circulate freely in the community. It is little wonder that under such circumstances isolation and quarantine procedures have been relatively ineffective in controlling the spread of scarlet fever. Unquestionably they have a value in the individual instance, protecting a given child against infection from an associate. On a community basis, however, they have failed miserably to affect the total incidence of any disease, especially scarlet fever, since they fail to reach so large a portion of the total reservoir of infection. It is interesting to note that some thirty years ago the cities of Trondheim and Bergen, Norway, discontinued such practices with no apparent increase in scarlet fever or

diphtheria.⁴ The individual protection would appear to be of such value that we might hesitate to abandon the practice completely, yet the general ineffectiveness should make us reasonable in our requirements and make us realize how little reliance can be placed on such measures as methods of control of spread throughout the community.

A second serious obstacle to effective control lies in the uncertainty as to the strains of hemolytic streptococci capable of causing recognizable scarlet fever. Although there are some who believe that these strains are highly specific and bear little relationship to the large number of other strains that are pathogenic for humans,⁵ it would appear more likely that a very close interrelationship does actually exist. There is much reason for believing that these several strains differ in large part through their varying capacities to infect and to produce the erythrogenic toxin. A strain that is capable of producing a moderate or large amount of toxin is more likely to cause a clinically recognizable scarlet fever than is a weak toxin producer. Yet infection with the latter might be attended by rash if the patient has a very low level of antitoxic resistance.

If this concept of scarlet fever is correct it is immediately apparent that we are no longer dealing with a clinical entity but rather with a group of infections due to the hemolytic streptococci, the clinical manifestations varying according to the balance between the organism and the several elements of resistance. In the literature of the last few years we thus find an increasing tendency to escape from the narrow concept of scarlet fever, septic sore throat and similar designations and to consider the whole group of hemolytic streptococcal infections.^{6, 7 and 8} This would appear to be consistent with our present knowledge. It indicates, however, that the problem of scarlet fever control must be enlarged to cover that of control of the entire group of hemolytic streptococci.

If we are considering the entire group of streptococcal infections it becomes imperative that we should have means for identifying and classifying the several strains of organisms. The recent studies of Lancefield in this country and of Griffith in England have shown that these organisms can be classified into certain types in a manner quite comparable with that in which we subdivide the pneumococci. The technics involved are much more difficult so that classification is so far possible only in the research laboratory. It is already apparent, however, that the antigenic relationships between these several strains are very complex and also that the epidemiologic manifestations of the several strains may conceivably be as variable as are

those of the pneumococci. Until more is known of the epidemiologic characteristics of infection with the several strains we must be very cautious in our assumptions that because the infections act in a given way in one place at a given time, they will therefore behave similarly at some other place or even in the same locality at a different date. There is reason to believe that in the study of the interrelationship of the several strains lies the solution to some of the apparent inconsistencies in findings and even to the problem of the fluctuation in virulence. Answers to all of these questions must await the further developments of the research laboratory and careful field studies based on typing of the streptococci involved. It seems apparent that we are on the threshold of as radical changes in our concept of streptococcal infections as have occurred with respect to pneumococcal infections following the development of satisfactory methods of typing. Our present uncertainty and inadequate knowledge with respect to strains constitute serious obstacles to effective control.

No discussion of the control or prevention of scarlet fever would be complete without some consideration of immunization. This is a subject of no little controversy in which it would appear that emotion had often outstripped scientific judgment. Objections due to dread of reactions and dislike of the manner in which the patents have been administered have been rationalized in bitter attacks upon the validity of the Dick test and the effectiveness of the Dick toxin. On the other hand, the most ardent proponents of the method have reported results so out of line with general experience and even beyond reasonable expectations that one may well hesitate to accept their conclusions.

If we strip this argument of its emotional and vituperative trimmings we must, I believe, acknowledge that within the limits of error attendant upon the use of any antigen-antibody reaction, the Dick test and toxin immunization are an extremely valuable index and prophylactic agent so far as clinically recognizable scarlet fever is concerned. There are bound to be failures in any method that depends on the quantitative interrelationship of infection and resistance. We see and expect occasional failures after immunization against smallpox, typhoid and diphtheria. Yet there seems to have developed a feeling on the part of the ardent Dick protagonists that failures may never occur and on the part of the opponents that an occasional failure indicates complete unreliability. Both attitudes are illogical and neither is in accordance with the facts. Our evidence as to the reliability of the Dick test as

a measure of susceptibility to clinically recognizable scarlet fever and of the value of the toxin as an immunizing agent against a similar type of infection, is as great as our evidence concerning the Schick test and the standard diphtheria antigens.

More extensive use of the methods in the hopes of effective control of scarlet fever has been hampered by two considerations. We cannot escape the fact that the use of the Dick toxin is attended with reactions somewhat more severe than are encountered in diphtheria immunization. Although I recognize this as a serious obstacle to the widespread use of the toxin, it should be pointed out that many of our younger physicians and nurses have an exaggerated idea of such reactions due to personal experience. Immunization of these groups is not popular, yet they overlook the fact that reactions encountered in small children are less frequent or severe than in young adults. Even so, it cannot be denied that reactions do occur and that these coupled with the number of injections have led many health officers to hesitate to attempt widespread use of the antigen. In a few places its use has been attempted but not for a long enough period of time or for a large enough proportion of the total population to give any index of its effectiveness as a community measure.^{9 and 10} Other antigens which are devoid of such severe reactions and can be given in fewer doses without too great sacrifice of antigenic power, are desirable. Research in this field has been retarded by the manner in which the patents have been administered. Whereas we have seen rapid and almost tumultuous progress in the field of diphtheria antigens during the past sixteen years, there has been little advance with respect to scarlet fever antigens. It is to be devoutly hoped that this situation will improve in the near future, removing one further obstacle to scarlet fever control.

More extensive use of Dick toxin immunization has been further restricted by uncertainty as to the nature of the resistance so established. There can be little doubt that a high level of antitoxic resistance is achieved, thus protecting the individual against the toxic manifestations, including rash. There is no conclusive evidence, however, that other antigens are administered with the toxin and that, therefore, any antibacterial resistance is obtained. Even if we were to accept the idea that some antibacterial resistance is established, it must be agreed that it is not of a very high order.

It has therefore been argued that use of the toxin immunization was undesirable in that it

would, through creating an antitoxic resistance, obscure the only good diagnostic criterion of scarlet fever infection. It is further maintained that this obscuring of the rash would mean more widespread infection due to the impossibility of recognizing and isolating the cases.¹¹ The proponents of this contention apparently assume that isolation and quarantine procedures are at the present time effective in controlling spread. It has already been pointed out that there is no evidence for such a contention. We are at present overlooking so many cases without a rash that scarlet fever spreads in uncontrolled fashion, the health department being able to do little more than keep the score. It is hard to see how we could have wider spread of this infection. Furthermore the few studies that have been made of the incidence of throat infections in an immunized group^{12, 13 and 14} do not suggest an increased incidence even though they fail to show conclusive evidence of a significant decline. Discussion of an increased spread in the community would thus appear to be highly speculative.

In opposition to this doctrine is the thought of the possible value of an antitoxic resistance even if no antibacterial resistance is possible. Until the recent advent of sulfanilamide and its derivatives in the treatment of hemolytic streptococcal infections, our therapeutic attack upon scarlet fever has been directed solely against the toxemia. I find it grossly inconsistent to argue against antitoxic immunization and at the same time strive to combat the toxemia of recognized cases. If toxemia is harmful to the child it is worthy of treatment and by the same token it is worth preventing. Since I cannot be certain of protecting my child against exposure to streptococci, I can at least protect her against the toxin, if not against the infection. Evidence from Roumania¹⁵ indicates that even with the use of an inadequate antigen, the severity and fatality of the malignant form of infection which is prevalent in that country is far less among the immunized group than among those not so protected. It seems to me that this in itself is sufficient to warrant the more extensive use of the Dick immunization, even if we were to acknowledge that it confers no antibacterial resistance. More evidence is needed on this latter point before we can be too dogmatic in our conclusions as to the failure to enhance the resistance to infection.

It is obvious, however, that the lack of an antigen which will definitely raise the antibacterial resistance to a high level, constitutes a serious obstacle to the control of scarlet fever.

To control the disease through immunization we must be able to prevent not only the clinically recognizable toxemic cases but also those which escape recognition due to the absence of the rash. In other words we must prevent streptococcal infections. This at the present time we cannot do through any of our known methods of restricting spread of infection or immunizing the potential victims. We must, therefore, fall back upon our last line of defense, namely, more effective treatment to reduce the ill-effects of these infections. This is largely within the realm of the clinician, although the health department may place its resources at his disposal by making such remedies available. The recent discovery of new methods of chemotherapy has immeasurably brightened the prospect in this field, but it still remains to be seen whether our present agents are equally effective against all strains of hemolytic streptococci. Future years will probably yield far more effective agents, in comparison with which our present agents may appear very crude and weak.

The obstacles to the effective control and prevention of scarlet fever are thus many and varied. Basically, however, they all resolve themselves into a consideration of the fundamental relationship between the hemolytic streptococci and their reaction upon the human body. The work of the Dicks in 1924 opened a new chapter in the history of scarlet fever and paved the way for future progress. The studies of Lancefield and Griffith in identification of different strains of streptococci have broadened our vista. It is not too much to hope that the coming years will be attended by even more rapid progress in this field and that research in the laboratory and the field will remove some of these obstacles and enable us to establish a control over these infections comparable with that already possessed against several other diseases.

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THE 1939 POLIOMYELITIS EPIDEMIC IN THE CITY OF DES MOINES

EVERETT M. GEORGE, M.D., Sc.D., and
HARRY E. RANSOM, M.D., Des Moines

While the decline in infant mortality rates and the control of communicable diseases are among the proudest achievements in the field of preventive medicine, other health problems have been brought into the foreground. Many of these problems cannot be successfully solved by the methods which have proved effective in the past. It is necessary to work out new methods by well conceived research studies and investigations. For example, on January 3, 1938, the National Foundation for Infantile Paralysis was organized for the purpose of leading, directing and unifying the fight on every phase of infantile paralysis, with operations confined to those of a medical and educational nature relating to the crippled individual.

HISTORICAL NOTE

Attention was directed to the subject of anterior poliomyelitis as early as 1774 by Underwood, an English physician. Heine was one of the first to recognize poliomyelitis as a definite disease entity in 1840, and Medin accurately described the acute stage of the disease in 1889. Hence it was termed Heine-Medin disease until the term poliomyelitis given by Kussmaul was generally accepted.

THE 1939 OUTBREAK

In 1939, there were 63 reported cases of acute anterior poliomyelitis in the city of Des Moines, with six deaths. During the same year there were 197 reported cases with thirty deaths in the state of Iowa. As shown by Fig. 1, this was an unusually high incidence of cases for the city of Des Moines. Since 1922, the previously reported cases had never exceeded 27 in any one year. Sev-

eral interesting factors associated with this epidemic are worthy of note.

SYMPTOMS

Ten to eighteen days are generally accepted as the period of incubation, with the period of greatest infectiousness during the first four days. In Table I the presenting and admission signs and symptoms are shown. These recordings closely correspond with signs and symptoms tabulated during previously reported epidemics. In Table II the extent of paralysis is recorded.

TABLE I

Signs and Symptoms

Presenting	Admission
Headache.....14	Fever.....45
Neck pain.....8	Rigidity of neck.....31
Generalized aches and pains.....7	Paralysis.....19
Stiff neck.....5	Sensorial difficulties.....7
Vomiting.....5	Dysphagia.....4
Fever.....5	Sore throat.....4
Chills.....5	Anorexia.....4
Leg pain.....4	Pain in extremities.....3
Paralysis.....2	Nasal voice.....2
Nausea.....2	Pain in neck and back.....2
Back pain.....2	Irritability.....2
Voice change.....2	Abdominal distention.....1
Jerking and twitching.....1	Rigid back.....1
Sore throat.....1	
Anorexia.....1	
Delirium.....1	
Weakness of legs.....1	
Hyperesthesia.....1	

TABLE II

Extent of Paralysis

Paralysis	Patients with other Paralysis	Patients without other Paralysis	Total
Right leg.....	7	0	7
Left leg.....	3	2	5
Both legs.....	6	8	14
Right arm.....	1	4	5
Left arm.....	1	1	2
Both arms.....	0	6	6
Respiratory muscles.....	2	7	9
Spinal muscles.....	0	1	1
Facial muscles.....	1	1	2
Totals.....	21	30	51

TREATMENT

Thirty-four patients were given convalescent serum, although no definite proof exists that this form of therapy was of value. All patients were given absolute bedrest. Proper splinting of paralyzed extremities was carried out by the use of wire splints, plaster moulded splints and plaster casts. The Drinker respirator was used when necessary due to paralysis of the respiratory muscles. Five of these machines are now available for use in Des Moines.

AUTARCESIOLOGY

There are numerous instances in medical literature of the occurrence of poliomyelitis in members of immediate and remote branches of the family. Aycock¹ and ² reports his studies would indicate that poliomyelitis occurs with a higher frequency among relatives of persons who have had the disease than among persons at random. These studies indicate a familial tendency in the occurrence of poliomyelitis, and are taken as an indication that the constitutional factor which determines the selective occurrence of the paralytic disease is inherent. However, recurrence of the disease in the same individual is rare. As high as 24 per cent of families have had multiple infection in an epidemic.³

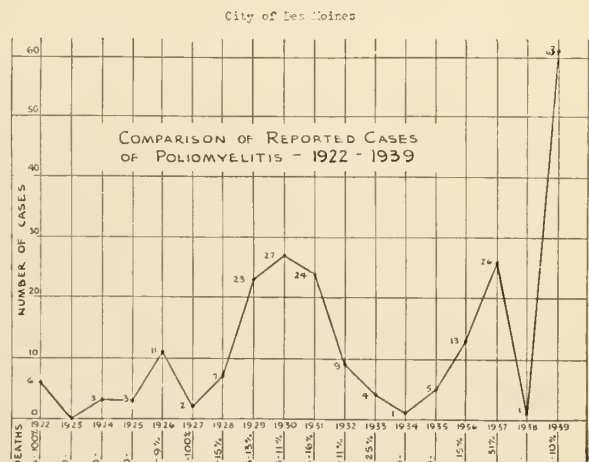


Fig. 1.

There were seven families involved in the Des Moines epidemic of 1939 where multiple cases of poliomyelitis occurred. In one family, a brother, nineteen months of age, and a sister three years of age, developed the disease at the same time. In another family a boy, five years of age, developed a severe case of poliomyelitis requiring the aid of the respirator. Ten days later this boy's father developed acute poliomyelitis and died in three days. In a third family, a girl, two years of age, developed poliomyelitis four days after her sister, nine years of age. In another family, a patient and his cousin developed poliomyelitis at the same time. In the fifth family, a brother and sister developed the disease within one week's time. In the sixth instance, an older brother of the patient had had poliomyelitis five years previously. In the seventh family, a brother of the patient had

had poliomyelitis ten years previously, and an aunt of the patient had suffered the disease in her youth.

SEWAGE, OUTSIDE TOILETS AND WELLS

For many years Toomey⁴ has presupposed the entry of the virus of poliomyelitis to be by way of the gastro-intestinal tract. Trask and his associates⁵ have reported finding the virus of poliomyelitis in the feces of a child ill from the disease, twenty-four days after onset of the symptoms. This virus remained viable for ten weeks in a refrigerated stool. These investigators⁶ also recovered the virus of poliomyelitis from sewage during the 1939 epidemic in Charleston, South Carolina, and reproduced the disease in monkeys.

Paul and Trask⁷ believe there is a strong case for considering poliomyelitis as an intestinal disease, but the evidence is still presumptive. Kramer and

his associates⁸ recovered the virus of poliomyelitis from the feces seven and nine days after the onset of illness. This would indicate that the virus withstands gastric acidity, which under normal physiologic conditions tends to keep gastric contents relatively free of bacteria. It further suggests that improper disposal of feces from patients with poliomyelitis may have serious public health consequences, especially in smaller communities where inadequate sewage disposal may result in contamination of surrounding beaches or even local water systems. Recovery of the virus from the gastro-intestinal tract with as great frequency as from the upper respiratory tract does not alter the concept of Kramer and his co-workers that the mode of entrance of the virus into the body is by way of the upper respiratory tract. The physiologic passage of nasal and oral secretions into the gastro-intestinal tract by reflex swallowing is predicated as the basis for the presence of virus in these

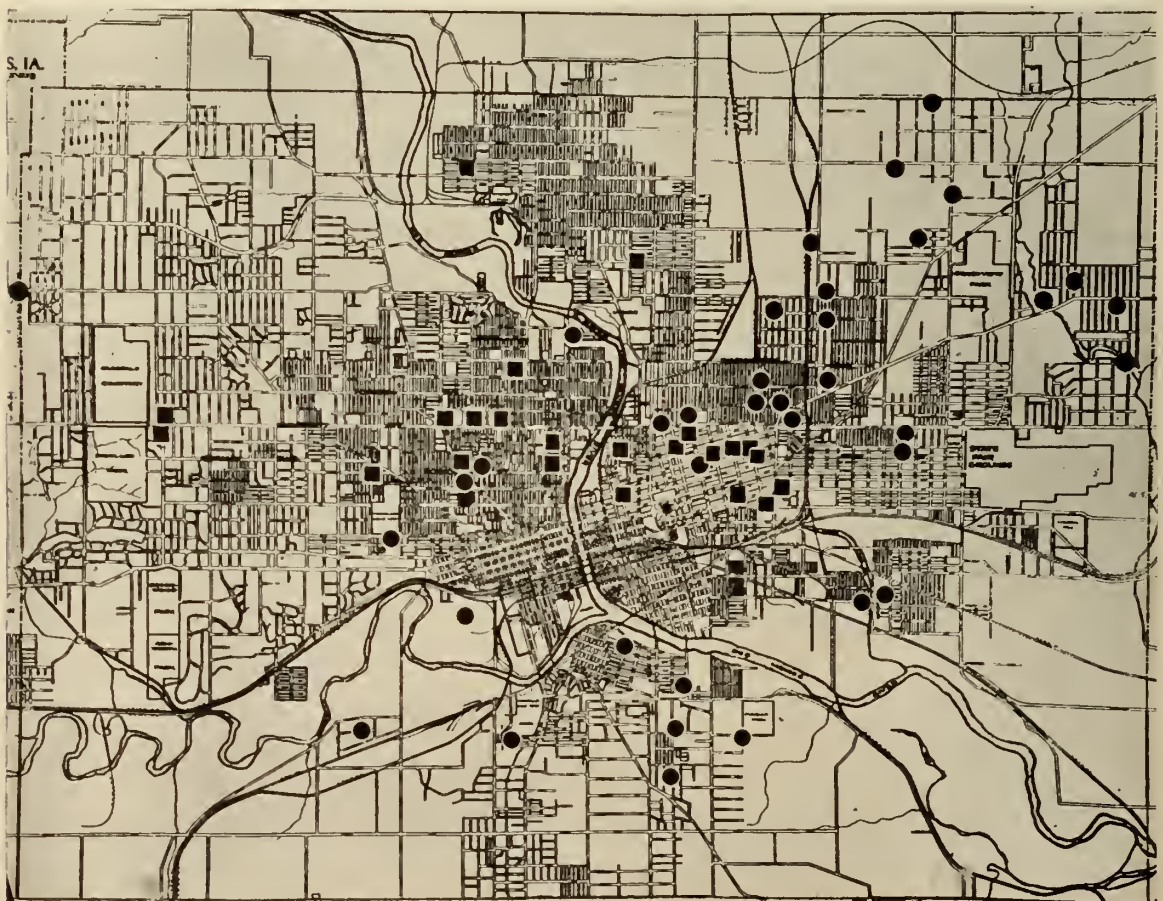


Fig. 2.

- Poliomyelitis within two blocks of wells and outside toilets.
- Poliomyelitis more than two blocks from wells and outside toilets.

organs. They also suggest that since the gastrointestinal tract functions as a temporary reservoir for secretions from the upper respiratory tract, the intestines should, after a time, contain the virus in higher concentration than any single sample of secretion obtained from the upper respiratory tract by nasal washing.

Ellsworth⁹ has reported that from the evidence in Massachusetts, the incidence of the disease during epidemics is generally highest in communities situated along the seacoast or along rivers, the waters of which are subject to sewage pollution. Given a sufficient concentration of the virus in sewage-polluted water, Ellsworth believes it conceivable that infection can be caused by the admission of such water into the nasal passages of the bather.

In Fig. 2 are shown the locations of residence for patients involved in the epidemic of 1939 in the city of Des Moines. The circles represent those patients who resided within two blocks of wells and outside toilets. The squares represent those patients who resided more than two blocks from wells and outside toilets. Although it is considered significant that over 70 per cent of all cases occurred within two blocks of outside wells and toilets, no further deductions regarding the importance of such data are drawn.

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OBSERVED RELATIONSHIP OF POLIO-MYELITIS INCIDENCE AND ENVIRONMENTAL SANITATION IN DES MOINES, IOWA

ROBERT C. HANLON, M.S.,
Public Health Engineer

Polk County Health Service, Des Moines, Iowa

During the fall of 1939 Trask, Paul and Cullotta¹ reported the recovery of the virus of poliomyelitis from sewage collected at Charleston, South Carolina, during an outbreak experienced in that community. In their report these writers state: "It is not evident from this work whether the presence of poliomyelitis virus in sewage is a direct or even indirect link in the chain which leads the infectious agent from one patient to another in this disease. Our report merely calls attention to the fact that poliomyelitis virus may not only be present in sewage but that it may possibly be present in appreciable quantities." This is the first time that the presence of poliomyelitis virus is reported as having been demonstrated in sewage. In 1940, Casey and Aymond² reported a statistical study of poliomyelitis in Louisiana, with an incidence rate three times higher in towns of 100 to 3,000 population having public water supplies but lacking sewerage facilities, than in large cities and truly rural areas.

It is the special purpose of this paper to report the scatter of poliomyelitis and its observed relationship to sanitation of the environment in Des Moines, during the period from 1929 to 1939 inclusive. The distribution of poliomyelitis cases in Des Moines, by months for the eleven year period is shown in Table I.

The majority of cases occurred during early fall, 93 per cent of the total being reported in the four months of August, September, October and November, and 63 per cent during September and October. Occasional cases occurred during the late fall and spring seasons.

A sanitary survey was made with reference to the 62 cases of poliomyelitis reported in Des Moines during 1939. Using the criterion of one or more outside toilets within two blocks of the patient's home as an index of the poor sanitation of the neighborhood, it was observed that over 70 per cent of the cases occurred in communities of this classification. Only sixteen cases were reported from the heavily populated west central portion of Des Moines, in which are located only 176 of the city's 4,880 outside toilets. Incidentally, over half of these sixteen cases occurred in the oldest part of this area where housing conditions are poor.

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TABLE I
Seasonal Distribution of Poliomyelitis
Cases in Des Moines for the Eleven Year Period, 1929 to 1939

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Totals
1929	3	6	13	1	1	24
1930	9	9	5	...	23
1931	1	...	...	...	...	...	5	4	...	1	11
1932	1	1	4	1	...	...	7
1933	1	...	...	4	...	...	...	5
1934	1	...	...	1	...	2
1935	1	2	...	...	...	3
1936	1	...	...	...	...	1	7	2	1	...	12
1937	...	1	1	...	...	...	...	10	8	4	2	...	26
1938	1	...	...	...	...	...	1
1939	1	...	4	29	24	4	62
Totals	...	1	3	...	...	1	3	17	49	62	34	6	176

The first case in 1939 appeared on July 29 in a fairly good neighborhood; no cases were reported during the next sixty days. The second case occurred in a home using an outdoor toilet, and during the next ten days twelve cases were reported, all from homes with outdoor toilets. Following this the epidemic became more widespread, by far the majority of the premises concerned being in areas where there were outside

toilets. The greater share of these toilets are of the common pit privy type in a rather poor state of repair allowing insects and rodents ready access to the pit contents.

The accompanying chart (Figure 1) shows the incidence of poliomyelitis per 10,000 population in Des Moines for the year 1939, and the relative sanitary conditions of areas designated as A, B, C, D, E and F.

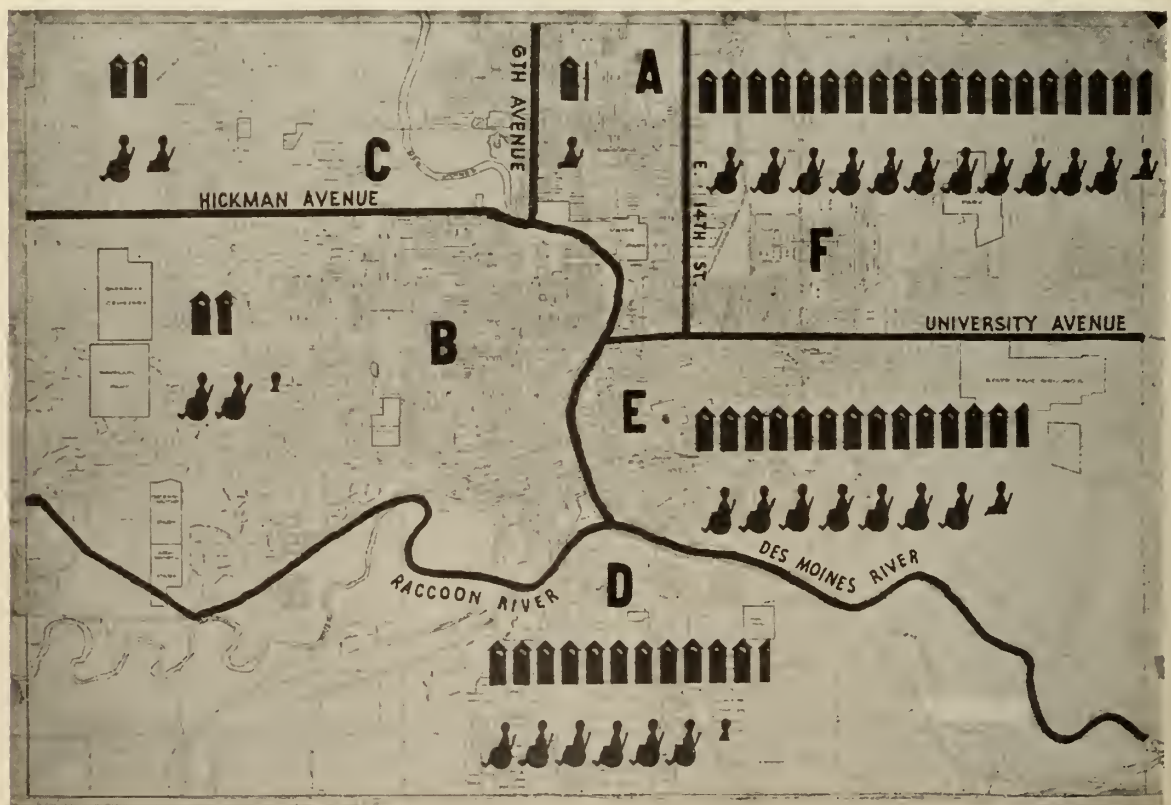


FIG. 1

Showing the incidence of infantile paralysis in relation to the sanitation of various areas of Des Moines, 1939. The wheelchair symbol represents one case of infantile paralysis per 10,000 population. The toilet symbol represents 100 outside toilets as an index of the sanitation of the area.

TABLE II

Showing the Distribution of Poliomyelitis in Various Areas of the City of Des Moines, in Relation to Population, Size of Area and Number of Outside Toilets, for the Year 1939 and the eleven-year period, 1929 to 1939

Area	Population	Square Miles	Population Density	Number of Outside Toilets In Area	1939		1929-1939	
					Cases	Rate*	Cases	Rate*
A	15,500	2.8	5550	106	1	0.6	12	7.7
B	73,200	12.9	5680	175	16	2.2	65	8.9
C	13,000	6.3	2060	263	2	1.5	15	11.5
D	11,409	15.3	740	1068	7	6.1	20	17.5
E	24,300	8.3	2030	1375	18	7.4	35	14.4
F	15,600	9.1	1710	1884	18	11.5	29	18.5

*Rates per 10,000 population were used for convenience in graphical presentation.

Each wheelchair symbol represents a case of poliomyelitis per 10,000 population. Each toilet symbol represents 100 outside toilets. The number of outside toilets in each area was used as a criterion of the sanitation status. Area F with a population of 15,600 had over five times as many cases per 10,000 population as area B with a population of 73,200. There are about 1,900 outside toilets in area F while area B has only 176.

in certain limits, as has been heretofore reported. Table II is graphically presented in the accompanying line diagram, Figure 2.

While the data for the eleven year period and the 1939 epidemic are not in exact agreement, it is believed that the relationship may be significant. The trend of a higher incidence in areas of poor sanitation is true over the eleven year period, as well as for the year 1939.

Weather conditions were rather unusual in Des Moines during the latter part of 1939. The fall season was very warm and dry. A new high temperature of 102 degrees was recorded on September 7 and on December 6 a new high was experienced for that month. The first light frost of the fall occurred on September 30, but cold weather was not encountered until Christmas. Since this weather coincided with Des Moines' rather severe outbreak of poliomyelitis, the weather conditions and number of cases each year for the eleven year period, were studied. Table III indicates the cases occurring each year when rainfall and temperature were above or below the 62 year average for the four months, August, September, October and November. It is observed that over twice as many cases were reported when the rainfall was below and the temperature above the 62 year average. Not considering the 1939 epidemic, a majority of the cases still fall in the above category.

No correlation was found between the incidence of poliomyelitis in the 1939 epidemic, and the water or milk supplies. A majority of the patients habitually used the public water supply. The cases occurring on any particular dairy route were approximately in proportion to that dairy's share of the total milk supply. The possible effect of other foods was not studied due to lack of data.

The city of Des Moines has an estimated population for 1939 of 153,000, occupying a rectangular area of six by nine miles and comprising 54.7 square miles. The business district is in the cen-

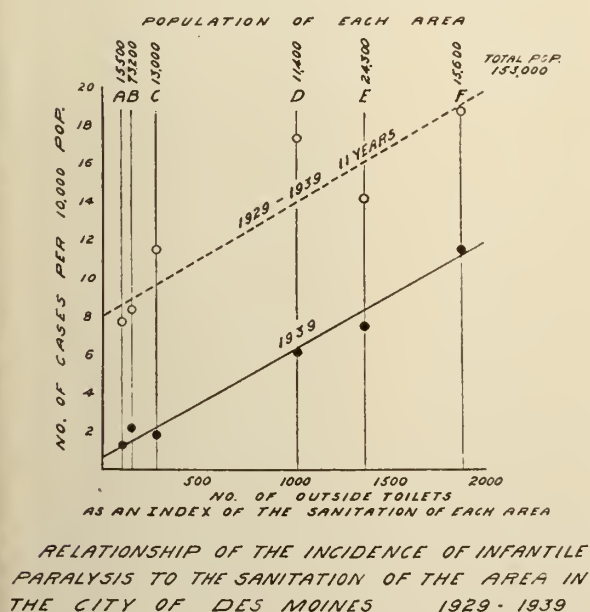


Fig. 2.

The location of all reported cases of poliomyelitis for the year 1939 and for the eleven year period from 1929 to 1939 was determined and the incidence rate was computed for the various Des Moines areas. The data, including area, total population, population density and number of outdoor toilets are exhibited in Table II.

It is observed in Table II that the incidence varies inversely with the population density, with-

TABLE III

Showing the Occurrence of Poliomyelitis in Des Moines (1929-1939), in Relation to the 62 Year Average of Temperature and Rainfall for the Four Month Period, August, September, October and November

Year	Total Cases	Rainfall		Temperature	
		Above 62 year Average Cases	Below 62 year Average Cases	Above 62 year Average Cases	Below 62 year Average Cases
1929	24	24	....	....	24
1930	23	....	23	23	....
1931	11	....	11	....	11
1932	7	7	....	....	7
1933	5	....	5	5	....
1934	2	2	....	2	....
1935	3	3	....	....	3
1936	12	12	....	12	....
1937	26	....	26	26	....
1938	1	....	1	1	....
1939	62	....	62	62	....
Total	176	48	128	131	45

ter of the area and the better residential sections are to the west and north. There are approximately 40,000 homes in the city. Several areas within the corporate limits are not heavily populated, making it difficult economically to reach these areas with public water and sewerage systems. There are 4,880 outdoor toilets serving a like number of homes. The municipal sewerage system is connected with 88 per cent of the homes. There are 2,880 private wells used for drinking water. Since many are used by several families, it is estimated that 91 per cent of the population uses water from the municipal supply. The milk supply is approximately 83 per cent pasteurized.

SUMMARY

1. Poliomyelitis cases apparently occur with greater frequency in areas of poor sanitation.
2. The disease is usually more prevalent during seasons when the rainfall is below and the temperature above average.
3. Improper disposal of human wastes appears to be an important factor, or to have some bearing in the occurrence of poliomyelitis.
4. More extensive studies are indicated to determine the possible significance of the virus in stools or sewage in relation to the spread of poliomyelitis.

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OPHTHALMOLOGISTS AND ELEMENTARY EDUCATION*

GEORGE C. ALBRIGHT, M.D., Iowa City

Of the increase in mental disease in our adult population, there is no question.¹ and ⁷ Of the increased moral delinquency of our young people, there is abundant evidence; the daily records of crime defy contradiction. Of the increase in those vague symptoms called nervousness, there is little disagreement among physicians. That the mental catastrophes of adult life have their incipency in insults to the nervous system of childhood, there is likewise little disagreement.

The two prime forces in the building of good mental health and good moral character should be the home and the school. We believe that certain features of our present day elementary education are adversely affecting the mental and physical health of our youth. If this is true, it is of vital interest to the medical profession.

Physicians are able to see and judge the evidences of early mental injury. By training and experience they know the significance for the future of the apparently trivial deviations from normal behavior in children. By training and experience the medical profession is best equipped to see the prodromal evidences of either mental or physical ill health. By training and experience, we are equipped to evaluate the consequences, either mental or physical, of any proposed program upon the health of our youth. By training and experience we are equipped to penetrate the presenting symptoms for the ultimate cause of those symptoms. Although we are in an unusually favorable position to study those elements in our educational pro-

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gram which may be tending to undermine the mental and physical health of our youth, we have been reluctant to scrutinize the program of education as it is being developed and administered. "It is just too bad that the medical profession has not taken more interest in education."²

Child education, with no check or balance upon either the subject matter presented or the manner of its presentation, has been delegated to the educational profession. They have assumed more and more jurisdiction and control of the lives of our youth. It must be admitted that the schools have assumed this jurisdiction because it has been all too willingly surrendered by the parents. Those parents now face the unpleasant fact that too frequently children can have no part in the work of the home. School work must be done first and there simply is not enough time for both. Normal home life suffers.

The major efforts of the medical profession have been directed toward the conquering of physical disease. These efforts have been somewhat successful. In mental disease, we find that instead of a decreasing incidence, "today patients with mental disease occupy forty-seven per cent of the hospital beds of this country, and for the country as a whole, the number of persons hospitalized for mental disease increased more than forty per cent from 1926 to 1936."³

Disturbing as is this increase, of greater portent to us should be the increasing incidence of certain symptoms, which, when carefully considered, may be fairly regarded as prodromal to those mental diseases which later require hospitalization. Physicians cannot help being impressed by the increasing number of children and young adults who come into our offices, nervous, tense, jittery, complaining of symptoms for which we can find no physical basis. Until we look behind the symptoms which they give, for the many disparate influences that impinge upon the nervous mechanism of the body, and endeavor to mitigate the results of those impacts, we shall be violating one cardinal principle of good medical practice—treating the disease without removing the cause.

Many other factors may be entering into the picture which cause nervousness, restlessness and irritability. Our careful scrutiny of the system of elementary education for factors which may be the possible cause of these symptoms, does not exclude any of the other factors. Neither does it minimize their importance. That there is dissatisfaction with our program of education, few will deny. Here should be noted the distinction between the program of education as formulated by schools of

education and educational psychologists, and the actual class room teaching by the rank and file of teachers of the prescribed subjects.

It has been the writer's good fortune to be located in our university city. Having taught there for a number of years and being acquainted with many of the faculty of the College of Education, he has had frequent opportunity to hear and discuss changing ideas in education. As a member of the board of education, he had opportunity to observe, at first hand, innovations in education, in both the public and the University Elementary Schools. As a parent, he has seen the effect of some of the innovations upon the growing child. As a result of these various experiences and opportunities, interest in educational matters has been continuous. He is convinced of the value to educators of a medical layman's viewpoint. It is true that the conclusions reached are based upon some conditions indigenous to one community. However, in a commonwealth as homogeneous as Iowa, in which the schools are so generally dominated by the University influence, it is not likely that the findings in Iowa City will differ greatly from those in any other community.

May I discuss with you the factors in our educational program which appear to me responsible for some of the symptoms of mental ill health in our youth. You may rest assured that some of the conditions which obtain in our educational program will be found in yours. The search for the underlying factors in any system of education which may cause mental ill health should be directed along three lines:

I. The curriculum. This should be studied from two angles: first, the number of subjects, and who determines the subjects; and second, the subject matter content and the authors of the textbooks.

II. The methods of teaching. Under this we should consider not only the matter of subject presentation but also the method of examination.

III. The development of the competitive or "tournament" aspect of the curricular, as well as the extracurricular, subjects.

THE CURRICULUM

Who determines what, and how many subjects? In Iowa the Northeastern Association of Colleges and Universities for years has specified what subjects shall be taught, how many hours shall be given to each subject, and how many hours of work shall be completed in order that the high school graduate shall be able to enter the college or university. College entrance requirements have been the main goal. The high school curriculum has been

dictated from above. However, popular demand in recent years has obtained considerable liberalizing of this control, more elective and less required work. Recent years have seen the introduction of many new subjects into the curriculum, some of debatable value.

The curriculum should be changed to meet changing needs. If new subjects are to be added, others should be dropped. Failure to do this has resulted in a greatly overloaded curriculum, confusing to the student, dissipating to the energies of the teachers, and burdensome to the taxpayers of any community. However, if the number of subjects taught is a cause for great concern in maintaining mental health, the content of the subject matter is far greater. The gradual seeping in from above of too advanced material constitutes a most insidious and vicious phase of curricular contamination. The subject matter presented for assimilation by our children is amazing in its scope and content, beginning in the lower grades and extending through the high school. For example, in a second grade reader the children are expected to grasp the phylogenetic significance of dogs chasing automobiles and for turning around several times before lying down in front of the fire. In a fifth grade hygiene textbook the difference between bacilli, cocci and protozoa is given. The life history of the malarial parasite is studied. In a sixth grade geography we find pages devoted to the glacial epoch, its various advances and recessions, the formation of coal beds, stratified limestone beds and their effect upon the economic life of our country. The effect of the Piedmont Plateau and Appalachian Highlands upon the industrial life of the East; the effect of ancient Inca civilization upon the culture of the American Indian are studied in this same grade. A sixth and seventh grade history book, 960 pages in length, filled with footnotes and references, in reality a college text, asks this poser, "What would have been the effect upon the culture of the United States if the battle of Zama Plains (222 B.C.) had resulted in a victory for the opposing army?" These absurdities have been observed in our school program. Investigation may show that they exist in yours. What effect upon the nervous equipment of our children may we expect as a result of their efforts to comprehend such material? Either a feeling of defeat, of mental inferiority, or a silent or outspoken resentment against such educational impositions. Neither attitude is conducive to acquiring a good education. Neither attitude bespeaks the development of a happy, normal philosophy of life.

The inclusion of such advanced material stems

from two different sources. First, the use in our schools of textbooks, written by authors doing college or university work. Being so far removed from the grade school levels, they have lost sight of the ability of the immature mind to assimilate knowledge. What is simple to them may be "Greek" to the student. The field of their particular interest will be emphasized in the texts they write. For example in a fifth grade arithmetic appear such subjects as true and bank discount; the five things that must be in a promissory note to make it legally binding; the difference in stocks and bonds; the computation of the rate of return on the investment when cost, par value and dividend rate are given. The author of that textbook was active in the stock market. Most fifth grade pupils are not greatly interested in the New York Stock Exchange. Is it any wonder that under such conditions pupils become nervous, jittery, emotionally unstable, mentally maladjusted, if not physically ill?

The second source is to be found in the increased emphasis on advanced degrees for our school teachers. A baccalaureate degree is required of a high school teacher. Many of them possess M.A. or Ph.D. degrees. In many large school systems a master's degree is a deciding factor in the choice of a teacher. Many superintendents have their doctorate. In a recent article,⁴ a teacher points out some of the absurdities that have resulted from the insistence, by colleges of education, that school administrators have a Ph.D. degree.

The assumption is that the higher degree connotes a better teacher. Unfortunately the acquisition of the advanced degree may serve, too often, to deflect its possessor from the primary purpose of teaching students and developing their characters, to the less desirable objective of teaching subject material. Unfortunately too, these advanced degrees may serve to make their possessors much less sympathetic with the difficulties of their school pupils. A doctor of philosophy whose thesis dealt with integral calculus is not likely to be sympathetic with the youngster who is having difficulty in handling common fractions.

Am I then advocating less well trained teachers? Most emphatically no; but the breadth of human understanding, sympathy and kindness should keep pace with their increasing breadth of knowledge. Pupils respond far more readily to a gracious, kindly, sympathetic personality than they do to the most erudite teacher lacking these qualities. No increment of knowledge can offset the psychic havoc an intellectual iceberg may wreak upon young developing personalities.

METHODS OF TEACHING

Another factor in our present day elementary and secondary education which we believe is contributing to the increased mental ill health of our youth is the manner of subject presentation. There is a trend toward standardization of teaching methods. This includes the manner of presenting the subject matter and the methods of testing results obtained. Mass production methods have invaded our schools. This, like the curriculum, is due in part to the direction from above. Colleges of education have set patterns to which their graduates who expect to teach shall conform. Demonstration teachers in practice schools bring these prescribed methods of teaching to the young women and men who would teach your child and mine. Certificates to teach are awarded to those who conform to the pattern set. Is individual initiative encouraged? Anyone who ten years ago dared question the changelessness of the I. Q. as then taught by our educational psychologists can answer that question for you.

What are some evidences of standardization of education? One is the widespread employment of standardized tests, e. g., the Thorndike or Terman-Stanford-Binet, (for intelligence) throughout the United States. Second, the Cooperative Test Service of New York City offers to furnish, for a price, examination materials for all high school grades and subjects. This means all schools, regardless of size or of educational standards. Third, the University of Iowa, College of Education, this year, gave approximately 300,000 examinations to over 80,000 students in grades three to eight. This surely suggests the regimentation of pupils in education. "Regimentation of youth had been one of the major criticisms of modern education."⁵

More significant, as a factor in increasing mental ill health, than the administration of any given series of tests here in Iowa, has been the development of a type of testing, the objective test. This test employs a number of statements to be marked true or false; or the multiple choice type, in which one of several given answers is selected as best answering the question given; or a matching test, in which a long list of words or facts are to be fitted into blanks in another equally long series of statements or questions, like a jig-saw puzzle; or the completion list, in which a statement is started and the pupil finishes it.

Objective tests call for a large number of items, the usual number being about two to be answered per minute. Thus, in a recent ninth grade English test, the pupils had 180 items to read and dispose of in ninety-five minutes. In such a test is there any opportunity for sober reflection, careful

judgment or sound reasoning? All are attributes of a healthy mind. Only snap judgment can be employed. Such tests necessarily emphasize speed. The physiologic difference in reaction time in two equally able students, in such a test, brands one superior, the other a failure. Submitting to an educational psychologist the thesis that this emphasis upon speed might be a factor in producing mental ill health brought this reply, "It would be only a third or a half of the pupils who would be injured by any given speed or working."⁶ "Only a third or a half would be injured!" That is indeed a revealing commentary upon the psychology of that portion of the educational profession which this psychologist represents. Is the minority to be thus sacrificed for a possible majority? Could physicians utilize any therapeutic procedure which admittedly injured one-third or one-half of their patients?

Why are such tests employed largely to the exclusion of the essay type of tests with which you are all familiar? Its proponents claim that the objective test eliminates the teacher's personal estimate of the pupil's ability. Is this desirable? The pupil is merely Case No. 27. One reason given me by an advocate of the tests was more frank. "They're so easy to grade; anybody can do it as well, accurately and rapidly as I."

An inquiry on your part into the type of tests being given your puzzling patients may reveal conditions equally as disturbing to you as they have been to me. It will bring home to you very vitally the question, "What have physicians to do with elementary education?" It is my own carefully studied opinion that an ever-widening interest among physicians in elementary education will be the inevitable result. Careful study of the curricula of our schools, of teaching methods imposed upon teachers by administrators, of study habits resulting therefrom, of the methods of testing and grading our school children, will reveal very many potent causes for the mental and physical condition of many patients brought to us. Physicians, in general, are in a peculiarly favorable position to make observation upon, and a study of, the school problem. More frequently than members of any other single profession, physicians are selected to serve upon school boards. We like to believe that the opinions of physicians upon any subject bear considerable weight. In those phases of education which may affect the physical or mental health of the pupil, physicians may speak with authority.

THE COMPETITIVE ASPECT

We have considered the curriculum and the methods of teaching and of examination. These

two aspects of our problem have been presented from the standpoint of their existence in any single school system. A third and very important causative factor in the increasing prevalence of nervous deviations in our youth involves more than any one school system. This is the development of the competitive or "tournament" aspect of curricular as well as extracurricular subjects.

We have seen in the past few years, basketball contests among a few schools spread until the "tournament" involves the entire state. In Iowa this year, there were sixty-four local contests, sixteen district contests, and the finals. The winning team played three hard games in two days. It is very doubtful if such prolonged competition is conducive to the best physical and mental health of our youth.

We find competition in music extending from the single school until it now involves the subdistrict, district, state high school, interstate and national music festivals. Again it is doubtful if the prolonged tension of competition serves a good purpose from a purely medical standpoint. Aesthetically, the emphasis has been changed from the wholesome enjoyment of one of the finest of arts, to a competition in which there is some question as to whether the appreciation of the art or the winning of honors is the major consideration on the part of the students and instructors alike.

Similar competitive contests are encouraged in our high schools in the field of debate and dramatics. High schools are classified according to enrollment. Contestants from each class meet in an annual play tournament, at the State University, to vie for the usual first and second honors. This past March more than 300 participants from all over the state took part.

In a somewhat different form this competition appears in what is known as The Iowa Every-Pupil High School Testing Program, more commonly called the Brain Derby. This Derby, sponsored by the University, has been existent for some twelve years. The objectives of this contest, the requirements for participation in it, the method of its administration and the scoring of the tests are too detailed and exhaustive for presentation here. They appear in a booklet sent out by the University to the participating schools. It can be procured, by anyone interested, from the College of Education. The tests used in this Derby are of the objective type. The explanation of the manner in which the test papers are scored or graded, as given in the above booklet, bears out the observation made earlier, that one of the reasons for employing the objective tests may possibly be the ease of marking. I quote from this booklet: "The

scoring keys provided with these tests represent a very marked improvement over those provided with most other available tests. The device employed consists of having the pupil record all of his answers to each test on a special answer sheet, which can be easily handled and very quickly scored with a single stencil type of key. The task of scoring a test is thus reduced to simply counting the crosses appearing through the windows of this one-page key. For most tests, a person without previous experience should be able to score up to fifty papers per hour. The use of supervised student help is quite practicable with these keys."

Tests are given in twelve different subjects: nine of these are subjects which appear in most high school curricula. The other three are designated English correctness, reading comprehension of literature and contemporary affairs. A student may take as many of the tests as he is eligible for or has time to take. The ones passing with the highest grades become winners in the Brain Derby. Whatever pride one may take in winning one of these events, one questions again, from the purely medical standpoint, whether the honors won will offset the mental and physical damage resulting from the strain of competition. The glory is evanescent; the physical and mental damage may be permanent.

Would it be advisable then to abolish all inter-scholastic competition, in athletics, music and scholarship? Probably not, but educators, administrators, teachers and students should view these contests in the light of the old economic law of diminishing returns.

To summarize, we believe that many educational procedures have been devised for and employed in our public schools without due regard to physical and mental consequences involved. Physicians cannot know all the facets of the educational innovations as do the educators. Educators cannot see the physical and mental consequences upon the growing child of their educational experiments, as do the physicians. Both professions must be disturbed by the increasing prevalence of mental and physical handicaps in our population. We believe that this increase has its inception in patients of school age. We believe that in elementary education are found some of the causes for this increase. We believe that educators and physicians should study together the probable causes for this increase and seek to remove those causes. Physicians may, with perfect propriety, show the mental and physical conditions present in school children. They may with perfect propriety show the etiologic factors present, and the necessity for making some revision aimed at removing the overload. The edu-

cators may then remove those factors. Each profession thereby confines its activity to that phase of the matter for which it is best trained, without encroaching upon the other's domain.

SUMMARY AND CONCLUSIONS

The object of schools should be to fit the children for wholesome adult living. We believe that this can best be done by bringing about a calm, quiet, reflective, acquisitive atmosphere in the school and in the home. We are convinced that the first logical step in this direction should be the easing up, by the schools, of the pressure for speed of acquisition. The second step should be the revision of the subject matter taught. This material should fit the average mental and chronologic age of the children. Grammar schools are not high schools; high schools are not colleges. The fields of learning will never be exhausted, so why should we try to impart so much of it in our public schools? Our secondary schools will have succeeded when they create the desire to go on, all during life, exploring the unknown. They fail when that desire in the children is smothered by futile attempts to acquire, too early, things beyond their grasp. We believe that by directing our efforts to these ends, we shall be able to bring to our children and our patients opportunity for a more quiet, profitable and enjoyable mode of living. By so doing, we may make a distinct, far-reaching contribution to the solution of the vital question of improving the mental health of our population.

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Discussion

Dr. J. K. von Lackum, Cedar Rapids: Dr. Albright has been a past principal of schools and has served on school boards for several years. Now that I am serving on our local board, this subject is of great interest to me.

I am very sympathetic with the essayist's viewpoint, especially so about the general nervous reaction many children show at the tender ages of twelve to fourteen years. The parent brings the nervous type of patient to us for glasses, hearing backwardness, and the various facial "tics." In our busy routine we look for trouble in our special field and in many instances find no evident objective disability which leads us to neurology or general medicine.

Further, the objective disabilities of eyes, ears, noses and throats, we as a group can handle. These

conditions may or may not be directly due to the faults in our school system, but we as physicians are the best qualified to analyze their etiology. Certainly a final survey would show:

1. Lack of optimal lighting of school rooms.
2. Inadequate ventilation.
3. Insufficient physical education or health programs to control immunization or epidemics and to detect the physically handicapped child with a follow-up system.
4. Health supervision of teachers to eliminate acute and chronic disease transfer.
5. Overloaded class rooms.
6. Excessive teaching load.
7. Expanded program especially in extracurricular activities.

Finally, I wish especially to emphasize the criticism of the "speed up" which is so detrimental to the developing child and the adolescent in particular.

Several manuals on school board membership recommend the inclusion of a physician. On the basis of judgment doctors are among those who are most valuable in helping to plan educational policies. The chairman, Dr. Cobb, should be commended for bringing the subject of our responsibility as physicians before the section.

Dr. George J. Pearson, Burlington: Few doctors are as well qualified by location and experience as Dr. Albright to discuss our public education. Emphatically, he is correct in condemning the parents for surrendering so much of the child's time to the supervision of the schools, but until the parents will look after their children out of school hours, it is advisable to have some other agency do it. We have numerous other civic and government organizations for this but the school does the best of any of these. Many of us had home chores to do, but now our children are taken to school in an automobile and called for after school, unless the mother is too busy with her bridge club, in which case the child can walk home, loitering along the way at any hot spots that are available. Such children are better citizens for having the school supply the outside activities that should be supplied in the home.

The need for liberalization of curriculum desired by Dr. Albright has been recognized in many schools. The worst situation is in physical education and athletics, because this is the most expensive part of the whole program to equip and execute. Physical education will be individualized and made more attractive as soon as it can be financed; at least this is true in our town. Flat feet and flat chests will no longer have the same exercise. Nervous trauma applies as much to the way a child is handled by the teacher or mother as to the way an anesthetic is given. I may refract a child who is doing poor school work and find no need for glasses but a "jittery" child, confused and frustrated by school work he does not understand, by a bad home influence and a social contact that irritates. The tragedy is that twice as much time is spent in explaining the child's needs to

the mother as in the refraction, and I realize that all too often there is no escape from the dilemma for the poor victim.

Before the depression, Detroit had an individualized curriculum as far as advancement of the pupil was concerned. The subject matter was stereotyped but as soon as a pupil had prepared his assignment he could be personally interviewed and a new assignment given if he were ready for it. Another pioneer in the right direction is a midwestern junior college with an enrollment of 1,600 pupils. Each is interviewed to determine her aptitude. Each is examined by physicians, and corrective body building is outlined. There are no competitive athletics with other schools, but any type of necessary or desired physical education is supplied. The assignment to classes is an individual study. The class room, where such is suitable, looks more like a bank directors' room, having a heavy table with upholstered chairs around it. The teacher sits at the head of the table and a small class of ten or twelve occupy the other chairs. The success of this school will have others following it.

Our own profession illustrates Dr. Albright's point of education of a teacher not being enough. How often have you seen a doctor having only average technical training but having that "breadth of human understanding, sympathy and kindness" do ever so much more good doctoring than his confrere who has better technical training but lacks that "gracious, kindly, sympathetic personality" which the doctor talks about in his successful teacher.

In regard to standardization in our schools, some system of tests or standardization is necessary as a means of recording the student's aptitude. The I. Q. helps to evaluate the aptitude of the individual and permit grouping of those of similar abilities. This is necessary so long as individual instruction is not possible because of a lack of funds and personnel. In our system from the third grade on we have grades within the grade. Each pupil is promoted if he keeps up with his group. The best group keeps getting farther from the poorest as they advance a grade so that by the time the junior high is reached they are far apart. Here the poorest are diverted to the industrial arts school, and those who are left are again divided into four groups in high school. Every effort is made to save the pupils from realizing this segregation. They are not Grades A, B, C and D, but are given so-called club names. Our superintendent likes the objective tests. The children I interviewed do also. They concentrate better when pushed for time to a reasonable extent. This saving of time liberates the teacher to teach and the student to study. Time formerly spent in writing and reading the essay type is now used for explanation and study. Competition is a part of life. It begins in infancy if there is more than one child in the family and becomes more complex and strenuous until maturity is attained. Our superintendent and principals agree that the pace set and the ends to be attained are far too strenuous for the age of the pupil, the lower

grades imitating those higher up until it becomes a truly pernicious situation. This is especially true in athletics. Further it has perverted the standards of the teacher and of the school boards. What athletic coach can hold a job, much less get an advancement, without a winning team? The same is true in music, etc. The alumni and patrons of a school demand a winning team, be the means fair or foul. The teacher forgets the main purpose of the course and prepares for the contest. This is the reason our superintendent has not participated in the Brain Derby to which Dr. Albright refers. Further it creates jealousy and unhealthy competition between teachers. When our orchestra was entered in the state music contest, it practiced on the contest number almost exclusively. Now we have a music festival with adjoining cities, rotating the host city, with an outside conductor to criticize and conduct, but no ratings given. As a result, the year is full of new numbers and a variety of subject matter.

I am glad Dr. Albright did not omit the movie and radio. Inquiry among my associates indicates that the indiscriminate radio and movie program has upset the nervous stability of as many of their patients as any other factor.

A good illustration of cooperation which the doctor desires between the educator and physician is the book on hygiene used in our schools, written by three people working together, a physician, a librarian and an educator. It is called "Keeping Well" by John Guy Fowlkes, L. Z. Jackson and A. S. Jackson.

Due to lack of time discussion from the floor and closing discussion by the essayist were not possible.

DIAGNOSIS AND TREATMENT OF PAROXYSMAL TACHYCARDIA IN GENERAL PRACTICE

OTTO NEURATH, M.D., Sigourney

Rhythmic disorders of the heart, especially if noticed by the patient, have always been considered as alarming signs. It took a relatively long time until modern means of cardiologic diagnoses, among them the electrocardiograph, rendered a clearer insight into the factors which determine the normal or pathologic course of the heart action. Disturbances of the normal rhythm were the main object for what we may call the first era of electrocardiography. We have learned to distinguish between arrhythmias which may befall a heart that otherwise has to be considered as absolutely healthy, and others which are due to muscular or valvular insufficiency, and have, therefore, to be regarded as prognostically serious.

To the former group belongs paroxysmal tachycardia which in most of the cases is "benign"; that is, without any lasting detrimental effect on the heart, although it puts the patient into a stage of

fright, and might even, if not stopped in time, cause signs of decompensation which, however, always are transient and disappear quickly once the normal rhythm is established. These two features, harmlessness combined with very alarming symptoms, justify a comprehensive description of these attacks and their treatment.

SIGNS AND SYMPTOMS

Although the cause for the attacks is not known, several contributing factors have been suggested as responsible for the occurrence of the attacks in certain individuals. Such factors are: heavy meals with accumulation of gas in the stomach and subsequent high position of the diaphragm, nervous strain, physical or mental exhaustion and endocrine disturbances. An analysis of a larger number of cases seemed to indicate that a relatively high percentage of female patients had disturbances of the menstrual cycle or other disorders of the generative organs. Many times, however, we are unable to find any relation to other pathologic conditions.

The comparison of carefully taken histories reveals many common features. One of the most impressive characteristics is the sudden beginning and likewise the abrupt ending of the attacks. The predominant sensation is localized in the precordium; it is usually described as palpitation, rapid heart beat, hammering or pounding, which often is also felt in the neck (carotid arteries) and in the epigastrium. Sometimes the pulsation in the neck or the costal angle is prevalent. In a few cases the main pulsation was felt only in the head.

The accompanying symptoms can easily be explained by the temporary inability of the heart to maintain the circulation. Since the increase in the rate necessarily shortens the diastole, the diastolic filling of the ventricles is impaired, the minute volume is decreased, and we are not surprised to find symptoms similar to those seen in other conditions of cardiac failure. Those commonly found in paroxysmal tachycardia are: weakness, pallor, dyspnea on only slight physical exercise, such as sitting up and walking or climbing stairs, pains in the precordium, irradiating into the left shoulder and left arm, preferably on the ulnar side of forearm and hand, and in longer lasting attacks signs of virtual decompensation, such as congestion of the lungs with coughing, rarely edema of the lungs, swelling of the liver with epigastric pains and nausea, and finally edema of the legs. These symptoms occur usually in the order named. The end of the attack is described as sudden and abrupt, followed by a standstill of the heart which may last several seconds. Many times we found

the attacks brought to an end by vomiting, after which the patient was surprised to find his heart beating slowly and all the frightening symptoms gone. It stands to reason that the paroxysms render the patient excited and restless. However, patients who have been suffering from paroxysmal tachycardia for a longer period realize their harmlessness and become accustomed to keeping themselves absolutely quiet, thus avoiding unnecessary exhausting movements.

It is self-evident that the predominant objective sign is the tachycardia which ranges between 150 and 220 per minute. Yet we must consider other conditions in which rapid heart beat may occur to establish the differential diagnosis.

1. Sinus tachycardia. This tachycardia is found in children, in nervous persons, after physical exertion, in fever, in hyperthyroidism and accompanying other pathologic conditions. It rarely reaches higher rates than 130 per minute, increases during physical exercise, decreases when the patient is at rest, shows respiratory changes in frequency and is usually unnoticed by the patient, although a feeling of palpitation may be mentioned.

2. Auricular flutter. The differential diagnosis between paroxysmal tachycardia and flutter is important because these two conditions require an entirely different treatment. Flutter occurs in higher frequency than paroxysmal tachycardia, the rate being 200 to 400 per minute, although a partial block can be deceptive. If only every second or third auricular contraction is followed by a ventricular systole, the counting of the ventricular or radial pulses may well be in accord with the usual frequency of paroxysmal tachycardia. Two important characteristics, however, permit us to establish the correct diagnosis in most of the cases. Physical exercise never changes the rate in paroxysmal tachycardia, while it often leads to a temporary retardation of the ventricular rate to one-half or one-third. This is due to the fact that the increased rate of the auricles in case of flutter finds the bundle refractory to every second or third stimulus, which then is not answered by a ventricular contraction. Another means of differentiation between flutter and paroxysmal tachycardia is the observation of the carotid arteries. In the latter condition we always find the carotid arteries visibly pulsating, often causing a rhythmic shaking of the whole region between the clavicles and the angle of the jaw. This strong pulsation is usually to be found independent of the position of the patient. On the other hand, pulsation of the carotid arteries is seldom seen in auricular flutter, whether the patient is examined standing erect or lying horizontally. We have paid special attention to this dif-

ferent conduct of the carotid arteries in paroxysmal tachycardia and flutter and found it sufficiently constant to be considered as valuable in the differential diagnosis.

3. Auricular fibrillation. The most important difference is the strict rhythmicity in paroxysmal tachycardia and the "absolute arrhythmia" in auricular fibrillation. In the latter, the arrhythmia can become more apparent, or changing, during physical exercise. In addition, a difference between the rate of the ventricles (counted with the stethoscope) and that of the radial arteries is always found with auricular fibrillation, although in cases of paroxysmal tachycardia we may also find a "pulse deficit," due to the weakness of the radial pulse which sometimes might escape the palpating finger. In cases of auricular fibrillation the carotid arteries show only a very slight pulsation, if any, and that always irregular. The so-called eurhythmia, seemingly rhythmic heart action during fibrillation, is always transient and gives way immediately to arrhythmia during or shortly after exercise.

Other signs which can be noticed especially in long-continued attacks, such as lowering of the blood pressure and beginning of congestion due to cardiac insufficiency, do not require special attention since they disappear shortly after the normal sinus rhythm has been re-established.

TREATMENT

In the treatment of paroxysmal tachycardia, the physician is faced with two tasks; first, to stop the attack; and second, to prevent its recurrence. We have several methods to bring an attack of paroxysmal tachycardia to an end, although unfortunately none of them is effective in all cases. However, in applying these methods we follow a routine order. After having assured the patient that his condition is not serious, and especially that he is not suffering from a severe heart ailment, we ask him for his cooperation, explaining in a few words what we are going to do. We apply the carotid sinus pressure. This pressure should never be applied on both sides simultaneously, because stimulation of both vagi might bring about a standstill of the heart. Otherwise, it is absolutely harmless. The patient lies horizontally, the head slightly elevated and turned to the side on which the pressure is to be applied. This position causes relaxation of the muscles which cover the carotid sheath. With the three middle fingers we palpate the carotid artery, the middle finger being at the height of the angle of the jaw, and then we press the artery suddenly and strongly against the underlying ver-

tebrae. The pressure need not be applied longer than five to ten seconds. At the same time the other hand puts the stethoscope on the heart at any point and its action is watched. If this procedure is not successful, it can be tried on the other side. Preferably we try it on the right side first, since the pressure on the right side is supposed to be effective in more cases.

The method to be tried next is the eye pressure (bulbus pressure). It is to be applied bilaterally and is rather painful, but it can do no harm to the patient. The patient lies horizontally, with his eyes closed, and we ask him to look downward. We need both hands for this procedure, and in order to divert the patient's attention, we let him hold our stethoscope on his chest. We put our palms on his head in the temporal region and apply a slowly increasing pressure with our thumbs on his eyeballs. It must be emphasized that sometimes a strong pressure is necessary in order to achieve the desired result, and also, that we need not be afraid of hurting his eyes, since we know that the eyeballs are embedded in a layer of retrobulbar fat, thus having the possibility of "retreating." Many times when the carotid sinus pressure fails, the eye pressure will stop the attack of paroxysmal tachycardia. Both methods act through the vagus nerve, and it is interesting to learn that there exist other methods of stimulating the vagi which a number of patients have learned to use by experience. Some hold their breath for a long time, some increase their intra-abdominal pressure by attempting to defecate, and one patient used to jump up and down. The strangest case we saw was a patient who claimed to stop his attacks only by going into a doorway and turning a somersault.

If the attack cannot be brought to an end by one of the two procedures mentioned, we turn to drugs, although this method takes longer to re-establish the normal rhythm. There is no preparation which is quick-acting, reliable and without any hazard at the same time. Derivates of quinine and acetylcholine have been recommended to be given intravenously, but they led in several cases to sudden lowering of the blood pressure and collapse. Morphine sometimes brings subjective relief and is certainly harmless in doses of $\frac{1}{8}$ to $\frac{3}{8}$ grains, hypodermically. The remedy of choice in stopping as well as in preventing the attacks is quinidine. After a trial dose of 0.2 of a gram, in order to exclude an allergy against derivatives of quinine, we start two hours later with doses of 0.4 to 0.6 of a gram. These doses are repeated every two to three hours until the attack has subsided. During the attack we advise the patient to stay in bed and use cold applications on the precordium. This

therapy is not only agreeable to the patient, but it tends to shorten the duration of the attack, because cold has an inhibiting effect on the nervous activities in general. The quinidine medication usually brings about the desired result in a few hours. Digitalis (and likewise strophanthin) has not proved to be of value if given in the usual doses. However, a few cases of long-lasting paroxysmal tachycardia with marked signs of cardiac decompensation are known to have responded to large doses of digitalis given intravenously (two to four cubic centimeters once to twice a day). In general digitalis can be dispensed with as a means to stop an attack.

Quinidine has proved to be the effective as well as the harmless remedy to prevent further attacks of paroxysmal tachycardia, and these two qualities permit us to make liberal use of its administration. The amount of the drug and the interval between doses depend entirely upon the frequency with which the attacks occur in the individual case. Unless we know from previous prescriptions that the patient is not allergic to the drug and that it does not disagree with his stomach, we routinely prescribe an initial dose of 0.2 of a gram to be taken at night, and continue on the next day with 0.3 to 0.6 of a gram every three to four hours. If the patient remains free from attacks, we may gradually reduce this dose; in case of attacks we have to increase it. If the attacks occur more frequently or if they take place at night, we continue the medication during the night. In the great majority of the cases the drug is very well tolerated and its medication can be continued for months without any harmful systemic effect. It is the physician's responsibility to balance the prescription against the frequency and intensity of the individual attacks.

In a limited number of cases, attacks of paroxysmal tachycardia are superimposed to another heart disease which requires special attention. In these instances we must be careful lest the management of the paroxysmal tachycardia interfere with the treatment of the other pathologic condition of the heart. Three of the most likely, although generally rare, coincidences shall be considered.

1. Mitral Stenosis with Auricular Fibrillation. In this case we are careful in prescribing quinidine at any rate, because the replacement of the fibrillation by the slower normal rhythm may bring about a loosening of potential thrombi in the auricles. The administration of small doses of quinidine should be combined with digitalis, after the two mechanical treatments are tried unsuccessfully.

2. Coronary Occlusion. Quinidine has a nega-

tive inotrope effect on the heart, thus weakening the heart already impaired by the infarction. Since morphine is not contraindicated in cardiac infarction, its administration is justified in these cases, especially since the attacks of paroxysmal tachycardia are usually of short duration when coronary occlusion is present.

3. Marked Hypertension. The cardiovascular system is permanently under excessive strain, therefore, these cases are inclined to decompensate rapidly. It is advisable to combine not too large doses of quinidine with sedatives, such as phenobarbital or chloral hydrate in the usual doses. Commonly the attacks can be stopped by carotid sinus pressure. The preventive dose of 0.2 of a gram of quinidine four times a day should not be increased.

SUMMARY

Paroxysmal tachycardia is usually harmless for the patient although it evokes alarming symptoms. Its diagnosis and differential diagnosis can be made without the electrocardiograph. Therefore, the description of the typical electrocardiographic picture in paroxysmal tachycardia has purposely been omitted. The treatment of the attacks consists of the carotid sinus pressure, the eye (bulbus) pressure and administration of quinidine; these methods should be tried in the order named. Quinidine is recommended as the sovereign remedy to prevent the occurrence of further attacks. Its dosage and contraindications are discussed.

THE FINLEY HOSPITAL CLINICOPATHOLOGIC CONFERENCES

INTESTINAL OBSTRUCTION DUE TO A GALLSTONE: RECOVERY UNDER CONSERVATIVE MEDICAL TREATMENT

L. A. FABER, M.D., and A. B. NESLER, M.D.
Dubuque

In 1936, we¹ reported the fatal outcome of a case of bowel obstruction due to a gallstone. The patient was a woman seventy-one years of age who had had symptoms of obstruction for six days and was moribund when first seen. A review of the literature at that time indicated an operative mortality of 30 to 50 per cent, largely the result of delayed operation. In non-operated cases the mortality approximated 100 per cent. The case to be described at this time is one in which the diagnosis was made seven days after the onset of

symptoms and operation was advised but refused. Under medical treatment the calculus was passed in the bowel movement on the twenty-seventh day after the onset of symptoms.

CASE REPORT

The patient, a white woman, forty-six years of age, was admitted to Finley Hospital June 23, 1940, because of "severe pain in the right upper abdominal quadrant, nausea and vomiting."

Family History: The patient's mother had died at seventy years of age of carcinoma of the rectum. Her father had died at seventy-six years of age of arteriosclerosis. Two brothers, two sisters and the patient's husband were alive and well. There had been no children.

Past History: Except for the ordinary diseases of childhood, and influenza in 1918, the patient had enjoyed excellent health until about three years before admission. At that time she had had an attack similar to the one under discussion. She had had another one about a year later. Each lasted about twenty-four hours. She had never been jaundiced or constipated and she had not noted clay-colored stools or blood in the bowel movement. Her menstrual cycles were symptomless and occurred regularly each twenty-eight days. She had never been pregnant and denied venereal disease.

Present Illness: Seven days before admission the patient became nauseated and vomited. She took several laxatives and shortly afterward began to have gradually increasing pain in the right upper abdominal quadrant. The pain radiated to the back and up between the shoulders. It became so severe morphine was required for relief. After three days, the pain ceased radiating to the back but was still severe and localized in the epigastrium. At this time the pain was cramp-like. Two days before admission she began to vomit bile and she described the pain as being like gas pains. Menstruation began at the onset of the illness although regularly it should not have begun for another week.

Physical Examination: The patient's temperature was 99.8 degrees; the pulse was 96 and the respirations 18 per minute. The blood pressure was 110/85. The patient was a well-developed, obese white female who appeared acutely ill. She seemed slightly cyanotic and was suffering severe pain. The head was negative. The pupils were contracted and reacted sluggishly (morphine). The nose was clean and ventilation was good. The teeth were carious and the hygiene was poor. The

tonsils were small and atrophic. The thyroid gland and cervical lymph nodes were not enlarged. The chest was symmetrical and expansion was equal on each side. The nipples were normal and no masses could be felt in the breasts. The axillary nodes were not enlarged. The lung fields were clear. The heart size was indefinite and the sounds were distant. There was a systolic murmur at the apex and it radiated toward the axilla. The rate was 96 and the rhythm was regular. The abdomen was obese. There was marked tenderness and muscle rigidity over the epigastrium. The spleen and liver were not palpable. No masses could be made out, nor was there evidence of fluid. The genitalia were negative. The skin was clean though slightly cyanotic. The reflexes were normal.

Laboratory Examination: The admission white blood count was 10,000 and hemoglobin was 20 grams per 100 cubic centimeters. The urine showed a faint trace of albumin, a few epithelial cells and an occasional leukocyte. Acetone and bile were negative. After fluids were given, the hemoglobin fell to 14.5 grams per 100 cubic centimeters.

Provisional Clinical Diagnoses: Cholecystitis with cholelithiasis producing intestinal obstruction.(?) Intestinal obstruction due to other causes.(?) Mesenteric thrombosis.(?)

Course in Hospital: The patient vomited some bile-stained material with a fecal odor and the abdomen became distended. Nasal suction was started and this gave some relief but the tenderness remained and now seemed localized in the region of the gallbladder. There was also some tenderness in both lower abdominal quadrants but more so on the right. The temperature fluctuated between 96 degrees and normal. The pulse ranged between 100 and 120 per minute. Repeated enemas were returned essentially clear but large amounts of flatus were passed. The cramp-like pains, while relieved somewhat, persisted and the patient complained of a feeling of weakness and exhaustion. On the third day an x-ray examination was made and the following report was returned: "The small bowel is quite markedly distended with no definite sign of gas in the large bowel. There is a large partly calcified density in the lower abdomen on the right side which has the appearance of a large gallstone, probably in the small bowel at the ileocecal valve and causing the obstruction. Conclusion: Small bowel obstruction, probably caused by gallstone."

The patient was advised to have the stone removed by operation, but she refused and there-

fore medical treatment was instituted. A high enema, preceded by 0.5 of a cubic centimeter of pitressin and followed by the insertion of a Miller-Abbott tube was then given in the



Fig. 1. Roentgenogram showing decompression of the small intestine by the Miller-Abbott tube and the gallstone at the ileocecal valve (twelve days before passage).

hope of causing the passage of the stone. (Fig. 1.) The passage of the tube was checked by daily x-ray examinations for seven days when the Miller-Abbott and nasal suction tubes were withdrawn during an emesis of a large amount

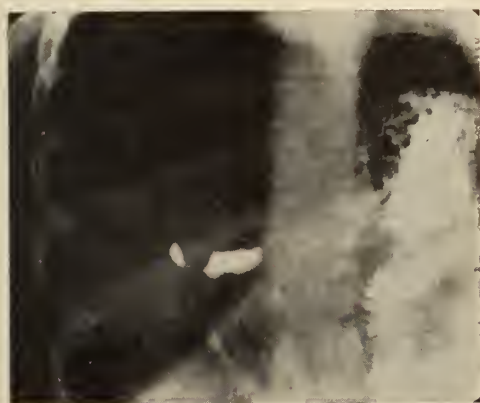


Fig. 2. Roentgenogram showing barium in the cholecystoduodenal fistula.

of bile-stained fluid. The suction tube was reinserted, large amounts of fluid with fecal particles were removed and the patient was relatively comfortable although complaining of pain in the right lower quadrant. On the fourteenth day after

admission the patient had a copious bowel movement. Subsequently she had others at irregular intervals and after a period of rectal discomfort passed a gallstone measuring 3.5 centimeters in diameter on the twentieth day in the hospital (the twenty-seventh day after the onset of symptoms).

An x-ray examination made after the patient had been discharged revealed a fistulous tract between the duodenum and the gallbladder (Fig. 2). The patient has remained free from symptoms since her discharge but has been warned as to the possibilities of future trouble from her gallbladder.

COMMENT

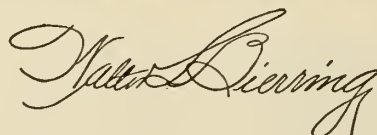
This case is of interest first, because of the comparative rarity of bowel obstruction due to a gallstone; second, because the obstruction usually considered fatal without surgical intervention was overcome by conservative medical means; third, because it demonstrated the efficiency of modern methods of decompressing and cleansing the bowel above the obstruction; and finally, because of the x-ray demonstration of the fistula between the gallbladder and duodenum, a prerequisite to the passage of a calculus large enough to cause intestinal obstruction.

In the previous case report, the incidence, etiology, pathology and treatment of bowel obstruction due to a gallstone were discussed and hence they will be omitted in this article. However, it should be pointed out that a review of the literature at that time indicated that in this type of case operating was considered imperative. With the development of more effective methods of relieving the distention of the intestine above an obstruction which occurred in the last ten years, it is now possible to obtain relief without surgical intervention. Even if the stone is not passed under such treatment the decompression and cleansing of the bowel decreases the toxemia and increases the chance of successful surgical removal of the calculus. Schlicke, Bargaen and Dixon² have recently described their results with conservative therapy in 166 cases of intestinal obstruction and state that "in most cases of simple obstruction of the small bowel and of low and medium grade obstruction of the large bowel" they were satisfactory. They were not satisfactory in high grade obstructions of the large bowel and such cases as well as those due to strangulation are strictly surgical.

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STATE DEPARTMENT OF HEALTH



TUBERCULOSIS CONTROL IN IOWA

C. K. MCCARTHY, M.D., Director
Division of Tuberculosis

"And a little child shall lead them." What a beautiful thought is suggested by the 1940 Christmas Seal. A symbol of hope to thousands of sufferers from a dread disease, the Christmas Seal this year is one of the few remaining universal signs of peace in this war-torn world. It is the symbol of the only welcome type of war that we know—the war against a dread disease.

In Iowa, and in the United States as a whole, the money derived from the sale of Christmas Seals is a prominent factor in the work done in the fight against tuberculosis. It has been instrumental in holding together all the workers in this field; sanatorium workers, public health agencies and the public at large.

Iowa Case-finding Program

In this state the control of tuberculosis is being attempted by a case-finding program sponsored jointly by the Iowa State Department of Health and the Iowa Tuberculosis Association. This program is in its third year of operation and a very large part of its success can be attributed to the fine support of the county medical societies of Iowa. Up to date the approval of seventy-six county medical societies has been obtained. The general practitioner is the most important factor in tuberculosis case-finding work. Without his cooperation the best type of work is impossible. The physicians of Iowa are giving generously of their cooperation and help in this work. The State Department of Health deeply appreciates the support given by the medical profession in Iowa. The program is apparently increasing in popularity in the rural counties of the state for which it was primarily planned. The accompanying map shows the various counties and their positions in relation to the Cooperative Tuberculosis Control Program, sponsored jointly by the Iowa State Department of Health and the Iowa Tuberculosis Association.

The Problem of Tuberculosis

Tuberculosis is still a grave problem in spite of the great fall in the mortality rate since 1900. Iowa has a death rate of 18.9, an extremely favorable one compared with the national rate of 46.6. In spite of this we had 479 deaths from this disease in Iowa in 1939, many of them perhaps needless.

Early Diagnosis

One cannot stress too vigorously the value of early diagnosis. In this disease the only hope of reasonably easy cure is a diagnosis of the condition before symptoms have occurred. It is well known that when symptoms have appeared the disease is already moderately advanced. By removing an early case from contact with the family and the community, we break the chain of contact and give the patient his best chance of early recovery. Every effort should be made to find these cases. We have, in the tuberculin test, an extremely sensitive test for the detection of this disease. If it were used routinely, as in the Wassermann test, many more cases would be found in an early stage. The test is harmless and practically painless. By following the lead thus furnished by this procedure we may protect many of our citizens, especially our children, from the ravages of tuberculosis. A negative test is also of great value in the differential diagnosis of many other chest conditions in which the diagnosis is sometimes difficult. By means of the tuberculin test and the x-ray we have a method of diagnosis of which the fullest advantage should be taken.

Case-finding and Diagnosis

In case-finding work a definite diagnosis is at times difficult, if not impossible, with one x-ray alone. The x-ray is a picture of the patient's past life and often further study is necessary before tuberculosis can be ruled in or ruled out. It is hoped that soon an arrangement can be made with the State Sanatorium at Oakdale, whereby these patients in need of further study can be sent there for a period of observation. We believe this will be a real step forward.

The Iowa State Medical Society, at its last meeting, appointed a committee on tuberculosis. Its purpose is to act in an advisory capacity on all types of tuberculosis work in the state and to promote postgraduate work on this disease through the Speakers Bureau. It should be a real asset to our armamentarium.

All these forces combined in the fight against tuberculosis, should make for realization of the motto: "For a Healthy State and a Happy People."

DR. WAGNER DIRECTS SERUM CENTER

Eugene C. Wagner, B.A., M.D., graduate of the University of Iowa (1938), has been appointed to the staff of the Iowa State Department of Health. Dr. Wagner assumed duties in the Division of Preventable Diseases on October 15, as Director of the Serum Center. He takes the place of Ellis K. Vaubel, M.D., who resigned to enter private practice and has since volunteered for active service in the Army Medical Corps.

SERUM VERSUS SHOCK

Serum Center Distributes Pooled Normal Serum to Combat Shock

The Serum Center of the Iowa State Department of Health announces availability of pooled human serum to combat shock.

Indications for the use of serum in the management of shock include hemorrhage resulting from pregnancy, trauma or other cause. Serum is known to be more effective in combating shock than are infusions of glucose, saline or acacia, without the untoward complications sometimes resulting from the latter preparations. In efficiency, serum is second only to the use of whole blood transfusions. Serum has the following definite advantages:

1. It can be refrigerated and stored safely for a period of months.

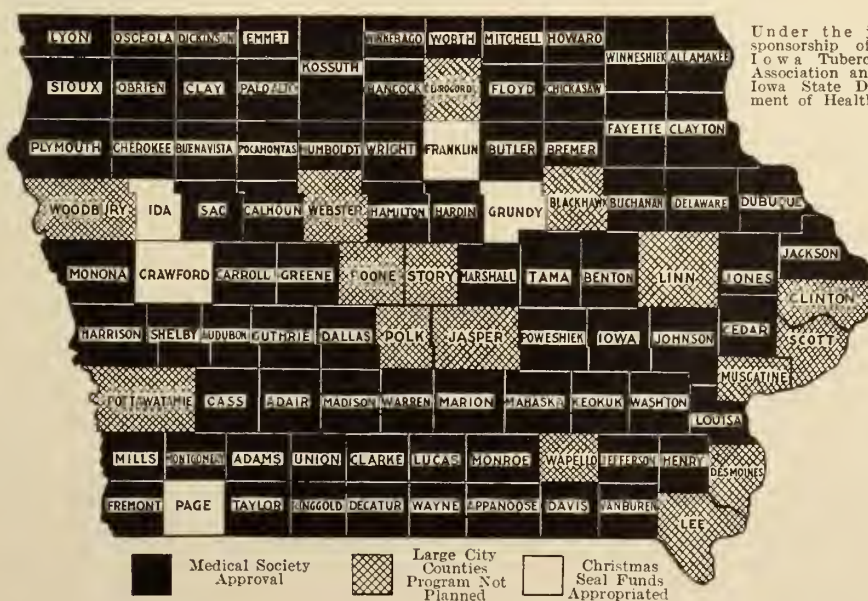
2. Pooled serum can be given to any patient, without the delay and loss of time necessitated by typing and cross matching.

3. Serum should be of great value in caring for emergency cases, especially in small hospitals where it is impractical to establish blood banks and where blood donors must be sought out, typed and cross matched before transfusion is possible.

Pooled normal serum (human) will be ready for distribution from the State Department of Health, Des Moines, after December 1, 1940. Patients or families financially able will be requested to make a contribution to cover cost of processing of serum.

The Serum Center, Des Moines, may be reached by telephone by calling 4-9111, extension 197 or 137. After 5:00 P. M. on week days, Saturday afternoons and Sundays, call Des Moines telephone numbers 3-2852 or 7-1417.

TUBERCULOSIS PROGRAM IN IOWA



FIFTH PNEUMOCOCCUS STUDY COURSE

Forty persons, five of them physicians, the others laboratory technicians, attended the pneumococcus study course held at the Department's State Hygienic Laboratory, Iowa City, November 12 to 14, 1940. This was the fifth course of this nature and brings to 150 the number of laboratory technologists and physicians associated with pneumonia typing stations in Iowa, who have attended the special courses for study of the pneumococcus. The first and second courses were held in December, 1938, the third and fourth in November, 1939. It is possible that another pneumococcus study period may be arranged in the near future for laboratory workers who registered but were unable to attend the last course. The accompanying table presents a list, arranged alphabetically by counties, of those who participated in the recent course.

PREVALENCE OF DISEASE

Disease	Oct. '40	Sept. '40	Oct. '39	Most Cases Reported From
Diphtheria	27	11	36	Hamilton, Polk, Scott
Scarlet Fever	199	101	253	Linn, Polk, Winneshiek, Scott, Floyd
Typhoid Fever	10	9	12	(Decatur, 3)
Smallpox	2	1	16	Lee, Shelby
Measles	142	75	29	Dubuque, Cass, Cerro Gordo, Dickinson, Floyd, Lucas, Mills, Montgomery
Whooping Cough ...	78	104	60	Dubuque, Woodbury, Sioux
Brucellosis	30	20	12	Black Hawk, Webster, Wright
Chickenpox	147	27	152	Dubuque, Jefferson, Lee
German Measles	2	4	2	Fremont, Jones
Malaria	3	5	13	Clayton, Scott
Mumps	102	47	85	Lee, Black Hawk, Muscatine
Pneumonia	83	43	38	For State
Polio-myelitis	242	422	60	Polk, Black Hawk, Mahaska, Story
Pulmonary Tuberculosis	192	2	61	For State
Tularemia	1	2	3	Boone
Gonorrhea	155	173	210	For State
Syphilis	222	209	318	For State

PERSONS WHO ATTENDED THE PNEUMOCOCCUS STUDY COURSE AT IOWA CITY, NOV. 12-14, 1940

County	City or Town	Name	Hospital or Laboratory
Black Hawk.....	Waterloo.....	Jean Hoyer.....	Presbyterian Hospital
Bremer.....	Waverly.....	Augusta O. Schwein.....	St. Joseph's Mercy Hospital
Buchanan.....	Independence.....	Thos. A. Daugherty.....	Independence State Hospital
Cass.....	Atlantic.....	Llyan C. Zindell.....	Atlantic Hospital, Inc.
Cerro Gordo.....	Mason City.....	Mary Tremaine.....	Mercy Hospital
Cherokee.....	Cherokee.....	Mrs. Ray Martin.....	State Hospital
Chickasaw.....	New Hampton.....	Sister Genevieve.....	St. Joseph's Hospital
Clarke.....	Osceola.....	Estella Moran.....	Osceola Hospital
Des Moines.....	Burlington.....	Matilda Lanahan.....	Mercy Hospital
Dickinson.....	Spirit Lake.....	Mary Price Roberts.....	Laboratory in office
Greene.....	Jefferson.....	Nettie Hunt.....	Greene County Hospital
Henry.....	Mount Pleasant.....	Dorothy Menefee.....	Henry County Hospital
Johnson.....	Iowa City.....	Patricia Hardin-Boyd.....	S.U.I. Hospital
Lee.....	Keokuk.....	Clara Blakely.....	St. Joseph's Hospital
Linn.....	Cedar Rapids.....	Guinnevere Boehmke.....	Mercy Hospital
Linn.....	Cedar Rapids.....	L. S. Coy.....	Security Laboratories
Linn.....	Cedar Rapids.....	Jean Wise.....	Security Laboratories
Linn.....	Cedar Rapids.....	Primrose Selden.....	St. Luke's Hospital
Linn.....	Cedar Rapids.....	M. A. Chehak.....	Security Laboratories
Marion.....	Knoxville.....	W. H. VanWagner.....	Veterans Hospital
Muscatine.....	Muscatine.....	Ida A. Koehler.....	Bellevue Hospital
Muscatine.....	Muscatine.....	Floyd A. VanderPloeg.....	Bellevue Hospital
Page.....	Clarinda.....	Coletta Reel.....	Municipal Hospital
Polk.....	Des Moines.....	Margaret Stevens.....	Broadlawn's Hospital
Polk.....	Des Moines.....	Irma Carlson.....	Iowa Lutheran Hospital
Polk.....	Des Moines.....	Margaret Devine.....	State Department of Health
Polk.....	Des Moines.....	Miss Moriarity.....	Iowa Methodist Hospital
Pottawattamie.....	Council Bluffs.....	Jean Ramsey.....	Jennie Edmundson Hospital
Scott.....	Davenport.....	Julia E. Hecklinger.....	St. Luke's Hospital
Union.....	Creston.....	Ruth Bridenstine.....	Greater Community Hospital
Washington.....	Washington.....	Dorothy Wenking.....	Washington County Hospital
Webster.....	Fort Dodge.....	Helen Mules.....	Mercy Hospital
Winneshiek.....	Decorah.....	Marie Norden.....	Decorah Hospital
Woodbury.....	Sioux City.....	Margaret E. Smith.....	Lutheran Hospital

ATTENDING PHYSICIANS

Dallas.....	Woodward.....	John T. Terrall, M.D.....	Hospital for Epileptics-Feeble-minded
Lee.....	Fort Madison.....	G. A. MacNamara.....	Santa Fe Hospital
Mahaska.....	Oskaloosa.....	F. O. W. Voigt, M.D.....	Mercy Hospital
Scott.....	Davenport.....	Katherine S. Krenning, M. D.....	Mercy Hospital

The JOURNAL of the Iowa State Medical Society

ISSUED MONTHLY

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THE NEXT FOUR YEARS

As the major echoes of the recent national election fade in the distance, we are reminded of one of our old college songs, two lines of which are as follows:

"Many sighs, many tears,
Mingle with the ——— cheers".

Presumably medicine numbers among its ranks many "sighers" and many "cheerers". However, with the political pattern of the country set for at least another four years, it is only logical to expect a united profession again to turn its attention speculatively on what may lie ahead in the years immediately to come.

In the past eight years of Democratic rule, medicine experienced many a bad moment in which it felt serious danger threatened its continued existence as a free institution. It fought against these threats with every force at its command. The National Physicians Committee for the Extension of Medical Service was formed with a declared purpose of conducting a nationwide educational program to combat the influence of those who sought to create the impression that medicine as a profession was inadequate, inefficient and mercenary. A bill (S. 1620) was before Congress which, if enacted into law, would have been, in the opinion of many, an opening wedge in governmental control of medical practice. However, a new force appeared on the horizon—a force so dominant that all other issues paled into insignificance beside it. This force was the spectre of war and the necessity for national preparedness. Forgotten was the Wagner National Health Bill and its \$850,000,000 budget; postponed indefinitely was the Federal Government's suit against the American Medical Association; and pushed to one side were all the old struggles

and arguments, as friend and foe alike united in one concerted effort to reckon with this new invader.

During the campaign both political candidates declared themselves as opposed to the socialization of medicine. On October 31 at the dedication ceremonies of the new buildings of the National Institute of Health, at Bethesda, Maryland, the President stated: "Neither the American people nor their government intends to socialize medical practice any more than they plan to socialize industry. In American life the family doctor, the general practitioner, performs a service which we rely upon and trust.

"No one has a greater appreciation than I of the skill and self-sacrifice of the medical profession. There can be no substitute for the personal relationship between doctor and patient which is characteristic and a source of strength of medical practice in our land".

Reassuring words, these, and we have no reason to believe that the administration's policies during the next four years will be other than those stated by Mr. Roosevelt; but what of this other chap, this giant who breathes fire and destruction at every step. Wherever his heavy heel has trod in other lands, men's liberties have always been sacrificed to his greed. Can we hope that in America we can build up a war machine, even if only for defense, which will not destroy our democratic way of life? Who can say! Much more is at stake now in the world at large than the mere question of socialization of American medicine. The very preservation of a way of life is in the balance, and if it is destroyed the resulting necessary reorganization will dip into every walk of life, medicine and industry alike.

VITAMIN K AND PROTHROMBIN IN THE NEWBORN

The discovery that an antihemorrhagic vitamin exists leads naturally to studies upon the possible relationship such a vitamin may have to various types of bleeding states. Already several reports have appeared in the literature which indicate that Vitamin K is of definite value in controlling bleeding in hemorrhagic disease of the newborn. This disease has been shown to be due to a prothrombin deficiency in the blood. The belief also exists that intracranial hemorrhage may occasionally be on the basis of prothrombin deficiency. Since Vitamin K acts by maintaining the normal prothrombin level in the blood, it becomes important to know what variations in prothrombin levels exist in normal infants in the neonatal period, and what factors influence these levels.

Kove and Siegel* report a study in which they

determined the daily prothrombin levels for the first eight days in 76 newborn infants. In addition they studied the maternal diet during the period of gestation of 76 infants with respect to its Vitamin K content in order to determine whether there was any correlation between this factor and the level of prothrombin found. In agreement with the findings of other investigators, these authors demonstrated that a prothrombin deficiency exists in the majority of newborn infants (68 per cent in their series). This deficiency varies within wide limits, but in general is most marked in the first two days of life when it is at its lowest ebb. A gradual increase occurred in the succeeding eight days, but still fell short of normal adult values. That a relationship exists between these results and the observed clinical fact that hemorrhagic diseases of the newborn occur most frequently in the first day of life and with decreasing frequency thereafter, is strongly indicated. However, the existence of a prothrombin deficiency by itself is not the only factor which precipitates bleeding in hemorrhagic disease of the newborn. No bleeding occurred in any of the above series, even when, as in one case, prothrombin was nearly altogether absent. The additional factor or factors are, as yet, not known.

A number of reasons have been advanced for the prothrombin deficiency of the newborn period, but none is conclusive. Among those which have been suggested are maternal diet inadequate in Vitamin K, inadequate absorption of Vitamin K in the intestines, deficiency or absence of bile in the intestines, and liver damage. The first of these possibilities, an inadequate maternal intake of Vitamin K, was found to bear no relation to the prothrombin level in the newborn, in the series studied by Kove and Siegel. However, the authors are quick to point out it must not be concluded that Vitamin K intake in the mother does not affect the prothrombin concentration in the newborn infant. They cite the work of other investigators who have conclusively demonstrated that Vitamin K administered in large doses in concentrated form to the mother during pregnancy or during labor will result in elevated prothrombin levels in the newborn period. Giving it directly to the infant at birth will produce the same result.

The conclusions which may be drawn from this important study are that maternal diet cannot be depended upon to furnish sufficient Vitamin K to prevent hemorrhagic disease in the newborn, that a prothrombin deficiency exists in the majority of newborn infants, and that this deficiency may be corrected by administering Vitamin K concentrate to the mother before labor.

*Kove, S., and Siegel, H.: Prothrombin in the newborn infant. *Jour. Ped.*, xvii:448-457 (October) 1940.

TUBERCULOSIS IN IOWA COLLEGES

The Eighth Annual Report of the Tuberculosis Committee, American Student Health Association, should be of interest to the physicians and the public of the state of Iowa. This national committee sent questionnaires to twenty-five colleges in the state asking for reports concerning tuberculosis case-finding programs in the respective institutions. Of the twenty-five colleges, only seven replied, and in only two of the institutions was there any tuberculosis program among the student body, faculty and employees. Throughout the nation 852 questionnaires were sent, 238 replies were received, and in only 133 were tuberculosis programs reported.

The value of case-finding programs in colleges is demonstrated by an analysis of the reports from 133 different institutions, with an enrollment of 261,949, where some organized tuberculosis program exists. In the college year 1937-1938, 229 cases were reported of clinically active reinfection type of tuberculosis, and 372 were diagnosed as arrested reinfection tuberculosis. In contrast is the analysis of reports from 105 institutions with an enrollment of 123,847, where there is no organized tuberculosis program. This group reported only five cases of active progressive disease and eight cases of arrested reinfection tuberculosis. Based on the experience in colleges where a case-finding program is under way, one would expect to find 108 cases of active disease instead of the five reported.

The value of a case-finding program to the individual student, whether he be the patient or the protected, is incalculable. From an educational point of view the value of a well ordered program is fully justified as a demonstration in practical preventive medicine. It has been repeatedly emphasized that the early infiltrations of reinfection tuberculosis cannot be demonstrated by clinical methods. The screening of students by the tuberculin test and the x-raying of reactors will detect the disease in a stage where recovery is possible, and will protect the student body from open cases of tuberculosis.

If it is true that there are only two colleges in the state of Iowa with some organized tuberculosis program, then it is the obligation of physicians and parents to demand from the administrative officers of the respective institutions a health program of preventive medicine. An appreciation of the modern methods of tuberculosis control and the adoption of a rational program of prevention will avert numerous tragedies among the student body of the colleges of Iowa.

The March Past*

Fifty-three years ago a young physician in Edinburgh named Dr. Robert Philip decided to specialize in tuberculosis, a disease at that time ravaging the homes in Scotland as well as in all parts of the civilized world. Five years earlier, in 1882, the germ of consumption had been discovered and doctors knew that the disease was not hereditary, as had been believed up to that time, but was spread by direct infection from one person to another. Young Dr. Philip pointed out that, while tuberculosis was in truth not hereditary, nevertheless it was a "family disease," in the sense that if one member of a family was ill with consumption most, perhaps all, of the rest of the household were likely to be infected and to break down later with the familiar symptoms. Dr. Philip preached the necessity of discovering these contact cases before the disease had progressed to a serious degree. The device which he employed was the diagnostic tuberculosis clinic, then known as a dispensary, the first one of which he established in Edinburgh in 1887.

When a case of consumption was diagnosed Dr. Philip at once called into the clinic all members of the patient's immediate and remote family who might have come into close contact with the invalid. These he examined in turn for early signs of the disease. Since families were of considerable size in those days the procedure was often prolonged and took on a certain formality. He referred to it humorously as his daily "March Past" of persons who had been exposed to infection. The name has clung as a tradition in this first of all tuberculosis clinics, which is still operating in his native city.

From that single diagnostic clinic many similar ones have sprung and today there are more than 1,000 in the United States alone. They are fulfilling the objective, the early discovery of the disease in a state where it can be prevented from developing, or the curing of it, if it has already gained some foothold. New discoveries, the tuberculin skin test and the x-ray, have added to the

CHRISTMAS SEALS



Help to Protect Your Home from Tuberculosis

effectiveness of the diagnostic clinic, but the principle upon which it was founded has not changed. The vision of its originator was prophetic, and he was spared to watch the progressive development of his idea into one of our powerful weapons in the fight to control tuberculosis.

From this brief account the man in the street can glean a hint of his duty to society. Tuberculosis is a disease. Therefore, it has its immediate classification in the realm of medicine. However, tuberculosis is also an infection, spread from one person to another during the family and business contacts of daily life. Therefore, tuberculosis is a social problem as well as a disease. The signs

of early tuberculous infection are subtle, often quite unrecognized by the infected individual until the disease has progressed to a danger point for himself and to the point where he, in turn, has become dangerous to others because of the presence of the living germs of disease in his sputum. The only hope, then, of preventing such spread and ultimately of eradicating the disease itself is to assure yourself from time to time that you are not one of the unconscious hosts of the tubercle bacillus, a menace to yourself and your family. The periodic health examination is one effective method of preventing such a potential tragedy. Furthermore, in case you know of some definite exposure from close contact with an active case of the disease, your watchfulness should be multiplied and you should insist on calling in the aid of the x-ray which will reveal even the tiny beginnings of trouble in the lung and give warning of needed care and caution.

Most of all, our social obligation is toward the protection of our children. In most communities one-third to one-half of them have been exposed to a mild invasion of the germs of consumption before they are of high school age. It is highly important to know which of a student group have been thus exposed, because from this number will come the great majority of those who will break down later with active tuberculous disease. This need not be so. The reason for such catastrophes

*Prepared by Kendall Emerson, M.D., Managing Director, National Tuberculosis Association.

is our lack of knowledge regarding just which children are in danger and our consequent failure to give them the medical and common-sense protection which will make such breakdowns highly improbable.

Fifty-three years ago, Dr. Robert Philip gave us our cue. We are slow learners and our apathy and indifference do no credit either to our intelligence or our humanity. We could celebrate this Christmas in no better way than to purchase Christmas Seals and to line up as a nation for a country-wide attack on tuberculosis. By doing this we will make headway against our ancient enemy, tuberculosis, and take a long stride forward in its final eradication.

MEDICAL PREPAREDNESS*

The Committee on Medical Preparedness is happy to report that Dr. Robert S. Shane of Pilot Mound, present chairman of the Military Affairs Committee and long active in this field of work, has been appointed Medical Director of Selective Service for Iowa. Dr. Shane brings enthusiasm and a wide background of experience in military medicine to this position, and we feel confident that under his leadership affairs will run smoothly.

The first men in Iowa to be inducted into service will appear for examination at Fort Des Moines on November 27, 28, and 29. The State Society was asked to provide a neuropsychiatrist to assist with the examinations during those three days, and one of the physicians on the Medical Induction Board volunteered to serve for the entire period. Probably no other demands on the Induction Board will be made until after the first of the year when more men will be called for examination. The State Society will be able to rotate the service among the physicians on the Board, so that no one physician will have to bear the brunt of it unless he wishes to do so. All local draft boards have been provided with examining physicians, thanks to the help of the county medical societies and the individual physicians.

Only seventeen county medical societies have appointed committees on medical preparedness. All societies should do this, because there will be much work of this nature, and one man or one group of men should be responsible for it. Letters asking that such appointments be made have been sent to eighty county societies.

Replies regarding the questionnaire have been received from about two hundred physicians this month. There are still too many who have sent in neither the schedule nor their reply; we hope they will all do so soon.

*From the Committee on Medical Preparedness.

MINUTES OF MEETINGS OF STATE SOCIETY OFFICERS AND COMMITTEES

Meeting of the Executive Cancer Committee Sunday, October 20, 1940

The Executive Cancer Committee of the Iowa State Medical Society met in the central office in Des Moines, Sunday morning, October 20, 1940, at eleven o'clock. The following persons were present: M. C. Hennessy of Council Bluffs, chairman; A. W. Erskine of Cedar Rapids and H. W. Morgan of Mason City. Also present were E. D. Plass and Mrs. A. V. O'Brien of Iowa City, members of the Executive Board of the Women's Field Army.

Business transacted was as follows: Mrs. O'Brien was reappointed Commander of the Women's Field Army for 1940-1941; E. D. Plass, M. C. Hennessy, D. F. Ward and H. W. Morgan were appointed to the Executive Board of the Women's Field Army; plans were made for preparing a manual on cancer which would serve as a basis for talks to lay groups and also be appropriate to be given to subscribers.

Meeting of the Board of Trustees Tuesday, November 12, 1940

The Board of Trustees and the Publication Committee of the Iowa State Medical Society met in the central office Tuesday evening, November 12, 1940, at eight o'clock. Those present included Doctors Oliver J. Fay, John I. Marker, Lee R. Woodward, Lee F. Hill, and Robert L. Parker. After discussion the contract for printing the Journal was awarded to the Wallace-Homestead Company for 1941.

ATTENTION—COUNTY MEDICAL SOCIETIES

A Committee on Medical Preparedness should be appointed in every county society in Iowa to be responsible for the work involved in the program. The size of the committee may vary with the size of the society. Appointments should be reported to State Chairman of Medical Preparedness, Dr. T. F. Suchomel, 415 Paramount Building, Cedar Rapids, Iowa.

PATHOLOGISTS MEET IN IOWA CITY

On October 19, the Iowa Association of Pathologists held its first scientific seminar in Iowa City, Iowa. Dr. H. P. Smith and the other members of the pathology and bacteriology staff at the University, acted as hosts for the group. The morning was spent in visiting the various departments concerned with pathology in the University College of Medicine, and the afternoon was given over to a seminar with tissue slides, blood smears and bacteriologic material presented by the members of the group. Those present were Drs. H. P. Smith, E. D. Warner, K. M. Brinkhous and I. H. Borts from Iowa City, Dr. Frederick H. Lamb of Davenport, Dr. F. A. Hecker of Ottumwa, Dr. R. F. Birge of Des Moines, Dr. A. C. Starry of Sioux City, Dr. A. S. McMillen of Fort Dodge, Dr. F. P. McNamara of Dubuque, Dr. F. M. Mulsow of Cedar Rapids, and Dr. H. W. Morgan of Mason City, Iowa.

SPEAKERS BUREAU ACTIVITIES

SMALLPOX ANNOUNCEMENT BROADCAST

In an effort to reduce the incidence of smallpox in Iowa, but with no idea of taking any action, we have asked for the past several months that the following announcement be made in conjunction with the weekly broadcasts sponsored by the Iowa State Medical Society:

"In 1938 not a single case of smallpox was reported in New York, Massachusetts, Connecticut, New Jersey and Pennsylvania. These states have a combined population of 32 million. They all have compulsory vaccination regulations for smallpox.

"During 1938 and 1939 Iowa, with two and one-half million inhabitants, reported a yearly average of 1,114 cases of smallpox. Iowa has no compulsory vaccination regulations.

"If you favor a compulsory regulation of vaccination for smallpox, please send a card or letter to radio station WOI, Ames, Iowa."

Approval for inserting this announcement was obtained from the Board of Trustees, the Council, the Committee on Child Health and Protection, the Committee on Public Policy and Legislation of the Iowa State Medical Society and the Iowa Pediatric Association and Maternal and Child Welfare Division of the State Department of Health.

It is of interest that to date thirty persons have written, stating they think some form of vaccination regulation is advisable. We are forwarding each of these persons a bulletin on smallpox published by the State Department of Health.

SCIENTIFIC TRANSCRIPTIONS

Numerous requests have been received for the scientific transcriptions listed in the November issue of the JOURNAL. It is our thought that these might be

used advantageously by the smaller county societies which like frequent scientific meetings. These recordings are not intended to supplant our regular postgraduate lectures, but rather to assist in reaching a larger number of doctors throughout the state. Societies wishing to use any of these recordings for their meetings should write the Speakers Bureau of the Iowa State Medical Society at 505 Bankers Trust Building, Des Moines, Iowa.

SPRING POSTGRADUATE COURSES

Preliminary schedules are now being compiled for spring postgraduate medical courses. Any group desiring such a course should communicate with the Speakers Bureau in the near future to allow sufficient time for satisfactory arrangements. At the present time schedules for four spring courses are being prepared. This notice is inserted now in order that the subject may be brought before the annual meetings of the county medical societies.

RADIO SCHEDULE

WSUI—Tuesdays at 1:30 p. m.

WOI—Wednesdays at 2:45 p. m.

- | | |
|----------------|--|
| Dec. 3-4 | Tuberculosis and The Seal Sale, John H. Peck, M.D. |
| Dec. 10-11 | Aviation Medicine, Harold A. Spilman, M.D. |
| Dec. 17-18 | Winter Skin Irritations, James W. Young, M.D. |
| Dec. 24-25 | Medicine's Gift, George H. Clark, M.D. |
| Dec. 31-Jan. 1 | Medicine Marches On, Henry H. Corn, M.D. |

POSTGRADUATE COURSE LECTURES FOR THE MONTH OF DECEMBER

Marshalltown	December 3	Vitamin Deficiency: Symptoms and Treatment, Clifford J. Barborka, Chicago
Ottumwa	December 3	Common Diseases of the Chest, Daniel W. Myers, St. Louis
Ames	December 4	Diagnosis and Treatment of Some Diseases of the Blood and Blood-Forming Organs, Raphael Isaacs, Ann Arbor
Ottumwa	December 17	Office Gynecology, Joseph L. Baer, Chicago
Des Moines	December 18	A Short Pathologic Conference, Julius S. Weingart, Des Moines

WOMAN'S AUXILIARY NEWS

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Treasurer—MRS. JAY C. DECKER, 722 Thirty-sixth Street, Sioux City

PENDING LEGISLATION OF INTEREST TO MEDICAL PROFESSION

Ever since the report of the Committee on the Costs of Medical Care was issued in 1932, much thought has been given to this subject in the United States. Following the passage of the Social Security Act in August, 1935, the President of the United States appointed an Interdepartmental Committee to coordinate health and welfare activities. It was in 1936, however, that the campaign for some radical changes in medical practice began to take a more definite form. In June, 1935, Dr. Warren Draper presented an address prepared by Miss Josephine Roche, the Treasury Department Secretary for Health, to the House of Delegates of the American Medical Association at its annual meeting in San Francisco. This was followed in July, 1938, by a National Health Conference called by the Interdepartmental Committee in Washington, D. C. The outcome of this meeting was a special session of the House of Delegates, the third in eighty-nine years, held in Chicago, September 1938.

As the result of this Conference, the House of Delegates of the American Medical Association in considering the National Health Program:

1. Approved the expansion of public health service where need could be shown; also, recommended the establishment of a Federal Department of Health with a Secretary who shall be a doctor of medicine and a member of the President's Cabinet.

2. Approved expansion of hospital construction, provided the real need could be demonstrated, recommending, however, the utilization of existing facilities to the utmost before a new building program was authorized.

3. Approved medical care for the indigent and for the medically indigent where need could be shown.

4. Disapproved of any attempt to foster a system of compulsory health insurance.

5. Approved the principle of assistance to workers for temporary disability resulting from sickness.

On February 28, 1939, Senator Robert F. Wagner of New York, father of much New Deal Legislation, introduced a bill known as S. 1620. This bill, commonly referred to as "The Wagner Health Bill," if enacted, will be cited as the National Health Act of 1939.

The stated objectives of the Wagner Health Bill are generally recognized as desirable, but the methods by which these objectives are to be attained cannot be approved. Over a period of three years, the bill contemplates an increase in federal expenditure of \$196,550,000, exclusive of expenditures for administrative purposes, over the expenditures authorized by the Social Security Act for maternal and child health services, for services of crippled children, and for public health work. After 1942, no definite amounts are authorized—only as much as may be necessary.

Analysis of the Bill

1. Despite the fact that physicians and all other qualified professional groups have repeatedly recommended coordination and consolidation of the health activities of the Federal Government, "The Wagner Health Bill" leaves existing and proposed prevention and curative medical services widely scattered through several federal agencies.

2. This bill does not in any way safeguard the continued existence of the private practitioner.

3. It does not provide for the thousands of vacant beds now available in hundreds of church and community general hospitals.

4. The Wagner Health Bill proposes an extensive program in the field of health, diagnostic and treatment centers, institutions, and related facilities without defining their function.

Stepping-Stones

*When I was very young,
I knew there was a God
Whose name was widely sung;
No miracle seemed odd.*

*And then there came a day
When I began to doubt;
I soon forgot to pray
And chose another route.*

*But now on Christmas Eve
He lives within my heart;
I know He had to leave
To prove we cannot part.*

—Elinor G. Chapler
from *Growing Heritage*.

5. This bill proposes to make federal aid for medical aid the rule rather than the exception.

6. The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease.

7. This bill insidiously promotes the development of a complete system of tax supported governmental care.

8. The House of Delegates in September, 1938, urged compensation for the loss of wages during sickness. The Wagner Health Bill deviates from this suggestion by proposing to provide medical services in addition to compensation.

9. The Wagner Health Bill provides for supreme federal control; federal agents are given authority to disapprove plans proposed by the individual states.

10. The House of Delegates, at its 1938 session, approved the expansion of preventive and other medical services when the need could be shown. The Wagner Health Bill prescribed no method for determining the nature and extent of the needs for which it proposes allotment of funds.

11. The Wagner Health Bill is inconsistent with the fundamental principles of medical care established by scientific medical experience and is contrary to the best interests of the American people. One of the main objections to this bill is that it takes away from the public the time-honored principle of free choice of physician and substitutes the assigned and politically favored doctor.

These points and many more were brought out at the St. Louis meeting by the Committee appointed by the House of Delegates of the American Medical Association to study the Wagner Health Bill and report on it to the House. At this meeting the House of Delegates of the American Medical Association voted unanimously to oppose the Wagner Health Bill as it now stands.

The one criticism which the Bureau of Legal Medicine and Legislation made above all others in relation to this proposed legislation was its extreme vagueness in the light of the vast sums of money to be dispensed and the great powers conferred on certain federal officers in the control of the spending and particularly the decision as to which of the individual states shall benefit by the expenditures.

The subcommittee states that it intends to report an amended bill at the next Congress. The medical profession will be prepared before the next Congress convenes for we now have an organization known as the National Physicians Committee for the Extension of Medical Service. This organization is a non-political, non-profit organization for maintaining ethical and scientific standards and extending medical service to all the people. Its Executive Board has as Chairman, Dr. Edward H. Cary and it has on it such men as Dr. Irvin Abell, Dr. Alphonse McMahon, Dr. Austin Hayden and many more who all stand for the best in organized medicine. It is an organization of physicians cooperating with lay institutions and groups for making more widely

available the services, more generally known the achievements, and for safeguarding the independence of American Medicine. The Iowa State Medical Society makes this entirely individual and voluntary on the part of its members.

The following is the platform of the American Medical Association which has been recently published.

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.

2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.

3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.

4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local control of administration.

5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.

6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.

7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.

8. Expansion of public health and medical services consistent with the American system of democracy.

Mrs. Charles Ryan, Chairman,
Legislative Committee

WHY ORGANIZE?

Our National Organization Chairman, Mrs. Charles Werner, states four good reasons why we should have more county and state auxiliaries, in the current copy of the Bulletin of the Woman's Auxiliary to the American Medical Association.

Reason No. 1 comes as the result of her visit to the Medicine and Public Health Building at the New York World's Fair. Large numbers of people visited these exhibits daily, giving definite proof "that the American people are interested in keeping well and will take advantage of authentic health displays whenever and wherever the Medical Society or its Auxiliary makes such health education available". Reason No. 1 is the need for a large amount of health education, and the need to sponsor public relations activities and help the American public to realize that it neither needs nor wants socialized medicine.

At the meeting of the American Medical Association in New York, the House of Delegates voted to offer the services of the entire organization of more than 117,000 physicians and surgeons to the govern-

ment in the existing emergency. The need for united and joint responsibility in this crisis is Reason No. II.

In explaining the need for mutual acquaintance, joint responsibility and joint action, as Reason No. III, Mrs. Werner says, "I contend that we need more members in this crisis; those now members need the help of eligible women who have not joined the auxiliary as yet, in order to do a big job of bringing the medical viewpoint on health problems to all lay groups which we can possibly contact. But isn't it also true that those women still outside the auxiliary group need us, need our friendship, need our interest and pleasure in working for the finest profession on earth, need our common viewpoint, need the realization that whether in the auxiliary or outside, we all have daily problems and routine worries which seem to be the common lot of physician's families?"

Reason No. IV is that one of the objectives of our organization is to help the Medical Society promote health education and such other work as is requested. Through our contacts with lay organizations, we are able to reach groups which the Society cannot easily contact. Every eligible doctor's wife should be a loyal, informed, trained worker in the Woman's Auxiliary.

Mrs. W. R. Hornaday, Chairman
Organization Committee

RADIO SCHEDULE

WSUI—Tuesdays at 1:30 p. m.

WOI—Wednesdays at 2:45 p. m.

- Dec. 3-4 Tuberculosis and The Seal Sale, John H. Peck, M.D.
Dec. 10-11 Aviation Medicine, Harold A. Spilman, M.D.
Dec. 17-18 Winter Skin Irritations, James W. Young, M.D.
Dec. 24-25 Medicine's Gift, George H. Clark, M.D.
Dec. 31-Jan. 1 Medicine Marches On, Henry H. Corn, M.D.

Dallas-Guthrie Auxiliary

Following dinner in the Presbyterian Church at Panora, the Woman's Auxiliary to the Dallas-Guthrie Medical Society met in regular session, Tuesday night, October 15. Mrs. E. T. Warren of Stuart, state president, discussed national auxiliary news with emphasis on the national organ, *The Bulletin*. She also gave an account of the State Board Meeting which was held in Des Moines on September 16. The following committee reports were made: Mrs. H. F. Clark of Stuart, state Hygeia committee; Mrs. A. G. Felter of Van Meter, state program committee; Mrs. W. A. Seidler of Jamaica, state public relations committee; and Mrs. C. A. Nicoll of Panora, county educational committee. Mrs. M. H. Brinker of Yale commented on state legislation for schools.

Mrs. C. R. Osborn of Dexter was appointed to report on all legislation of interest to the medical

profession at the January meeting, and the secretary was appointed county chairman for *The Bulletin*.

Mrs. K. M. Chapler, Secretary

Polk County

A social evening sponsored by the Woman's Auxiliary to the Polk County Medical Society was held at the Des Moines Club, Tuesday, October 1. Approximately 175 doctors and their wives were present. During the dinner hour music was furnished by talent from Drake University. A bridge tournament and other games furnished the evening's entertainment.

Mrs. Henry G. Decker, Secretary

Pottawattamie County

Members of the Woman's Auxiliary to the Pottawattamie County Medical Society met for luncheon and a meeting at the Vera Parks Tearoom in Council Bluffs, on Tuesday, November 12. Mrs. E. T. Warren of Stuart, state president, was guest speaker and gave a very interesting talk on suggested programs for the year, and the necessity of doctors' wives being well informed.

It was announced that members would meet on the third Wednesday of each month to sew for the American Red Cross. Mrs. M. C. Hennessy is city chairman of the Red Cross Annual Drive, and all members of the Auxiliary are working with her. Preparations are being made to distribute Christmas baskets and clothing to two needy families in Council Bluffs.

The program for this meeting consisted of two very interesting and educational talks on the "Causes, Results and Treatment of Poliomyelitis" by Mrs. Grant Augustine and Mrs. Isaac Sternhill.

Mrs. Julius Moskovitz, Secretary

DO YOU KNOW

That with the onset of cold weather the common cold becomes the most common illness, costing the persons affected millions of dollars each year?

That each person loses, on the average, two and one-half days each year because of common colds?

That the most important single factor in treating a cold is to stay at home at the first sign, get extra rest, drink extra water and fruit juices, and spend twenty-four hours in bed?

That the common cold is spread to those with whom they come in contact by the sufferers from colds, and that staying at home not only helps you recover more quickly, but also keeps others from contracting a cold from you?

That parents have a definite responsibility for the epidemics of colds in the schools when they allow their children to go to school with colds?

That although cod liver oil and other sources of vitamins do not prevent colds, they do help keep up the general resistance along with proper clothing, food, exercise and sufficient rest?

BOOK NOTES

If you are contemplating the purchase of books for Christmas gifts, we might suggest the following titles as being singularly appropriate as permanent additions to all home libraries.

Devils, Drugs, and Doctors by H. W. Haggard is one of the most fascinating histories of medicine which we have read. The development of medicine from the days of magic is traced to the present status of scientific discovery.

Paul H. De Kruif's *Microbe Hunters* is concerned, also, with scientific development, but emphasizes the lives and achievements of men such as Leeuwenhoek, Pasteur, Koch, Ehrlich, Walter Reed, and many others. The companion volume, *Men Against Death*, deals with modern scientific skirmishes against disease.

Perhaps no phase of medicine is more provocative or colorful than the history of anesthesia. Rene Fulop-Miller has written a splendid book, *Triumph Over Pain*, which covers this subject thoroughly and in such a masterly fashion that it reads like fiction instead of non-fiction.

Among the vast number of autobiographies which have been published within the last few years is Victor Heiser's *An American Doctor's Odyssey*. His personal experiences in public health work in many countries comprise one of the most entertaining and educational volumes in this field.

One of the most beautiful biographies of recent years is Eve Curie's biography of her mother, *Madame Curie*. Madame Curie might be counted one of the 400 geniuses of all time, and is more remarkable in that she was both a woman and a scientist. Her daughter has written the story of her terrific struggle against manifold odds in her efforts to isolate radium from pitchblende. The prose is as lyrical as poetry, and the story has pathos enough to touch the heart of even the most sophisticated.

Mrs. Keith M. Chapler

MEDICAL BIOGRAPHIES

I. Dr. Crawford W. Long

In the Hall of Fame in Washington stands a statue of Dr. Crawford W. Long. This honor is in recognition of his great discovery, the use of sulphuric ether as an anesthetic.

He was born at Danielsville, Georgia, November 1, 1815, and was graduated from the local academy at the age of fourteen years. He enrolled immediately at Franklin College, now the University of Georgia, where he took the degree of Master of Arts in 1835. He entered the medical department of the University

of Pennsylvania where he received his Doctor of Medicine degree in 1839.

After graduation he went to New York City where he studied for eighteen months with leading doctors specializing in surgery. It was then that he was impressed by the terrific suffering incident to it. At twenty-six he returned to Jefferson, Georgia, where he began the practice of medicine. Later he practiced in Atlanta for a year and finally located at Athens, Georgia, where he lived until his death June 16, 1876, after practicing medicine for nearly forty years.

Dr. Long was declared by those who knew him to be "a man of exceptional qualities of mind and soul, free from envy, malice, and uncharitableness. He admired the beautiful and best; in music, the masters; in literature, Shakespeare. His dignity of manner and appearance spoke of culture and high character." After pondering the following quotation one feels that one has all but seen and known Dr. Long. His biographer declares: "He maintained a slight reserve except among intimates and congenial people. Cheerful in the sick room, he inspired his patients with confidence. Tall and slender, dressed in conventional black, always with frock coat, he was in short a high-bred, scholarly, Christian gentleman." It is considered that Dr. Long was in advance of his day. He treated and cured consumption by food and fresh air; he cared for typhoid fever practically as doctors do now; he cured several cases of lockjaw; he operated successfully several times for cancer; and he was particularly skillful in the use of obstetric forceps.

Despite his long and excellent practice, Crawford W. Long would not be remembered if it were not for his outstanding discovery, the use of ether for anesthesia. Dr. Long made the discovery because he was looking for it and because he was a keen observer and a courageous man. His experience in hospitals where he witnessed the excruciating pain of childbirth and surgery made him determined to find a remedy. In 1842, after much experimentation on himself and animals, he gave ether to James Venable and removed a large tumor from his neck painlessly. The bill for this operation still exists, two dollars for the operation and twenty-five cents for the ether. During the next year it is known that he successfully used ether several times. The importance of what Dr. Long had done did not, however, become widely known. He was one of the quiet great men who do much good in their own community, but who, perhaps because of their humility, lose sight of the importance of their deeds. It is only in this century that he has received honor for his work.

So surgical insensibility became a reality. However, it was for the scholarly Oliver Wendell Holmes, when asked for a name, to suggest anesthesia, derived from two Greek words which mean "not feeling." Great glory belongs to Crawford W. Long for being the first to alleviate pain with ether. In so doing he shed a triumphant light over the nineteenth century.

SOCIETY PROCEEDINGS

Bremer County

The combined monthly meeting of the Bremer County Medical Society and the staff of Mercy Hospital was held Monday, October 28, at the Fortner Hotel in Waverly. After the six-thirty dinner, Fred L. Knowles, M.D., of Fort Dodge, spoke on Commoner Fractures of the Arm.

P. K. Graening, M.D., Secretary

Calhoun County

The Calhoun County Medical Society and the Calhoun County Health Council met in a joint session Tuesday, November 19, in Rockwell City, and were addressed by John I. Marker, M.D., of Davenport, on Bete Nôire of Medical Practice.

Hardin County

C. Harlan Johnston, M.D., of Des Moines, furnished the scientific program for the Hardin County Medical Society at its regular monthly meeting held Tuesday, October 29, at the Winchester Hotel in Eldora. Dr. Johnston spoke on Varicose Veins.

W. E. Marsh, M.D., Secretary

Jasper County

The Jasper County Medical Society held its regular monthly meeting at the Skiff Memorial Hospital in Newton, Tuesday, November 5, with dinner at six-thirty after which J. W. Billingsley, M.D., of Newton presented an illustrated lecture on Nailing Fractured Hips.

Jefferson County

Edward J. Kilfoy, M.D., of Los Angeles, California, was guest speaker for the Jefferson County Medical Society, Monday, October 21, at a meeting held in Fairfield. Dr. Kilfoy spoke on Diverticulosis of the Large Intestine.

Johnson County

Members of the Johnson County Medical Society were guests of the Oakdale Sanatorium staff Wednesday, November 6, for their annual meeting, following an afternoon session of the Iowa Sanatorium Association. Dr. John H. Peck, superintendent of the Sanatorium, presided over the six-thirty dinner and evening program, which consisted of an address by Benjamin Goldberg, M.D., associate professor of medicine, University of Illinois, College of Medicine, Chicago. Dr. Goldberg spoke on The Wandering Tubercle Bacillus and Its Reaction. Another feature of the program was an announcement and preliminary report on Homogenized Vitamin D Milk by Philip C. Jeans, M.D., professor of pediatrics, University of Iowa, College of Medicine, Iowa City.

Scott County

William T. Harsha, M.D., of Chicago, spoke on Retrocecal Appendicitis and showed a forty-five minute colored motion picture film illustrating the subject for members of the Scott County Medical Society, Monday, November 4, at the regular monthly meeting held in Davenport.

Washington County

The Washington County Medical Society held its October meeting Tuesday, October 29, in Washington. Robert L. Jackson, M.D., of the Children's Hospital, Iowa City, gave a lecture on Heart Disease in Children.

W. S. Kyle, M.D., Secretary

Webster County

Three physicians from Omaha furnished the scientific program for the Webster County Medical Society at the meeting held in Fort Dodge Tuesday, November 19. Esley J. Kirk, M.D., assistant professor of medicine, University of Nebraska, College of Medicine, and Charles P. Baker, M.D., presented a clinical pathologic conference on Nephritis, and Maine C. Andersen, M.D., assistant professor of medicine, University of Nebraska, College of Medicine, spoke on The Practical Application of Heart Tracings.

Woodbury County

William E. Adams, M.D., associate professor of surgery, University of Chicago, School of Medicine, was the speaker of the evening when the Woodbury County Medical Society met Thursday, November 14, at the Mayfair Hotel in Sioux City. Dr. Adams addressed the group on The Surgical Aspect of Empyema.

A. Q. Johnson, M.D., Secretary

Iowa Clinical Medical Society

Members of the Iowa Clinical Medical Society met in Davenport Saturday, November 9, for their semi-annual meeting. Dr. Frederick H. Lamb of Davenport was in charge of the following program: Treatment of Intractable Paroxysmal Dyspnea, Hyman M. Hurevitz, M.D., of Davenport; Cases of Scleroderma and Generalized Exfoliative Dermatitis, Elmer G. Senty, M.D., Davenport; Roentgen Ray Therapy, William H. Rendleman, M.D., Davenport; Case of Regional Ileitis, with demonstration, Felty's Syndrome and Prolonged Intermittent Fever in Hodgkin's Disease, Frederick H. Lamb, M.D., Davenport; Disturbances that may occur after Thyroidectomy for Exophthalmic Goiter, Samuel F. Haines, M.D., Rochester, Minnesota; Auricular Fibrillation with

Circulatory Decompensation Due to Toxic Adenoma, George Braunlich, M.D., Davenport; and Cases of Multiple Sclerosis and Emotional Instability, John I. Marker, M.D., Davenport.

Iowa Interprofessional Association

The Fort Dodge Chapter of the Iowa Interprofessional Association met in joint session with the North Central Iowa Veterinary Medical Association at the Hotel Wahkonsa in Fort Dodge, Thursday, November 21, with the following program presented as the evening session: Epidemiology of Undulant Fever, Carl F. Jordan, M.D., Des Moines; Diagnosis of Undulant Fever, Lee R. Woodward, M.D., Mason City; Treatment of Undulant Fever, R. N. Larimer, M.D., Sioux City; Undulant Fever as an Occupational Disease, J. H. Bruce, M.D., Fort Dodge; Diagnosis and Preparation of Vaccines for Bang's Disease, H. J. Shore, D.V.M., Des Moines; Immunization of Domestic Animals Against Brucella Infection, J. A. Barger, D.V.M., Des Moines; Brucellosis of Swine, S. H. McNutt, D.V.M., Ames; and Brucella Infections as Found in Other Animals, E. F. Watter, D.V.M., Ames. Dr. Albert A. Schultz of Fort Dodge presided over the round table discussion.

H. C. Smith, D.V.M., Secretary

Iowa Obstetric and Gynecologic Society

The fall meeting of the Iowa Obstetric and Gynecologic Society was held at Iowa City, November 1 and 2. After ward rounds Friday afternoon, the following symposium on Hypertension in Pregnancy was presented: Obstetric Aspects, E. D. Plass, M.D.; Medical Aspects, W. D. Paul, M.D.; Ophthalmologic Aspects, P. J. Leinfelder, M.D.; and Effect of Stilboestrol on the Lactating Breast, A. W. Diddle, M.D. Discussion of problem cases closed the scientific session, after which a six-thirty dinner was served at the Hotel Jefferson. Saturday morning was devoted to operative clinics in the University Hospitals.

Roy I. Theisen, M.D., Secretary

MARRIAGES

Miss Virginia Jane Van Dyke and Dr. Ronald Francis Martin, both of Sioux City, were married Saturday, November 16, in Sioux City. Immediately following the ceremony they left by airplane for New York from where they sailed on a three-week Caribbean cruise, after which they will return to Sioux City where Dr. Martin is engaged in the practice of medicine.

The marriage of Miss Frances Evelyn Seegmiller and Dr. Howard H. Smead, both of Des Moines, took place Saturday, November 9, at the home of the bride's parents, Mr. and Mrs. Charles J. Seegmiller in Grand Rapids, Michigan. After a wedding trip to Santa Fe, New Mexico, Dr. and Mrs. Smead returned to Des Moines, where Dr. Smead is associated with Dr. J. B. Synhorst and the Iowa Methodist Hospital.

Miss Gertrude Heronimus of Marshalltown was married to Dr. Robert R. Hansen, also of Marshalltown, Wednesday, October 16, at the First Presbyterian Church in Marshalltown. After a trip to California and Honolulu, they will make their home in Marshalltown, where Dr. Hansen has been practicing medicine for a number of years.

On Sunday, October 27, Miss Caroline VanMeter of Moline, Illinois, was married to Dr. Eugene C. Wagner of Des Moines, in the chapel of the First Congregational Church in Moline. After a short trip the young couple will make their home in Des Moines, where Dr. Wagner has recently been appointed Director of the Serum Center, Division of Preventable Diseases, State Department of Health.

DEATH NOTICES

Langdon, Floyd Britton, of Des Moines, aged fifty, died of a cerebral hemorrhage November 10 after a seven-year illness. He was graduated in 1915 from the University of Illinois, College of Medicine, Chicago, and had long been a member of the Polk County Medical Society.

Maynard, James Henry, of Adair, aged sixty-seven, died October 18 in Chicago of pneumonia. He was graduated in 1899 from Rush Medical College, University of Chicago, and at the time of his death was a member of the Cass County Medical Society.

Owen, William Edward, of Cedar Rapids, aged seventy-eight, died November 9 after an extended illness. He was graduated in 1889 from Rush Medical College, University of Chicago, and at the time of his death was a Life Member of the Linn County and Iowa State Medical Societies.

Reed, Lloyd Thomas, of Gravity, aged sixty-two, died October 17 of heart disease. He was graduated in 1900 from St. Louis College of Physicians and Surgeons, and at the time of his death was a member of the Taylor County Medical Society.

Sherman, Ellen Amelia, of McGregor, aged ninety, died November 2 after a long illness. She was graduated in 1879 from the University of Michigan Medical School, Ann Arbor, and at the time of her death was a Life Member of the Clayton County and Iowa State Medical Societies.

Throckmorton, Tom Morford, of Chariton, aged eighty-eight, died suddenly October 31. He was graduated in 1877 from the Jefferson Medical College of Philadelphia, and at the time of his death was a Life Member of the Lucas County and Iowa State Medical Societies.

THE JOURNAL BOOK SHELF

BOOKS RECEIVED

- LIQUOR, THE SERVANT OF MAN**—By Walton Hall Smith and Ferdinand C. Helwig, M.D. Little, Brown and Company, Boston, 1940. Price, \$2.00.
- THE FOOT AND ANKLE**—By Philip Lewin, M.D., associate professor of bone and joint surgery, Northwestern University Medical School. Lea and Febiger, Philadelphia, 1940. Price, \$9.00.
- PRINCIPLES OF HEMATOLOGY**—By Russell L. Haden, M.D., The Cleveland Clinic. Second edition, thoroughly revised. Lea and Febiger, Philadelphia, 1940. Price, \$4.50.
- ARTHRITIS AND ALLIED CONDITIONS**—By Bernard I. Comroe, M.D., instructor in medicine, University of Pennsylvania. Lea and Febiger, Philadelphia, 1940. Price, \$8.50.
- TWELVE AGAINST ALCOHOL**—By Herbert Ludwig Nossen, M.D., New York. Harrison-Hilton Books, 420 Madison Avenue, New York, 1940. Price, \$2.50.
- MODERN DERMATOLOGY AND SYPHILOLOGY**—By S. William Becker, M.D., associate professor of dermatology and syphilology; and Maximilian E. Obermayer, M.D., assistant professor of dermatology and syphilology, University of Chicago. J. B. Lippincott Company, Philadelphia, 1940. Price, \$12.00.
- GETTING READY TO BE A MOTHER**—By Carolyn Conant van Blarcom. Fourth edition. The Macmillan Company, New York, 1940. Price, \$2.50.
- OBSTETRICS AND GYNECOLOGY**—Edited by Fred L. Adair, professor of obstetrics and gynecology, University of Chicago. Two volume illustrated set. Lea and Febiger, Philadelphia, 1940. Price, \$20.00.
- MANAGEMENT OF THE CARDIAC PATIENT**—By William G. Leaman, Jr., M.D., assistant professor of medicine, Woman's Medical College of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940. Price, \$6.50.
- THE INJURED BACK AND ITS TREATMENT**—Edited by John D. Ellis, M.D., Chicago. Charles C. Thomas, Springfield, 1940. Price, \$5.50.
- PHYSICAL DIAGNOSIS**—By Ralph H. Major, M.D., professor of medicine, University of Kansas. Second edition, revised. W. B. Saunders Company, Philadelphia, 1940. Price, \$5.00.
- THE NEW INTERNATIONAL CLINICS, Volume III, New Series Three**—Edited by George M. Piersol, M.D., professor of medicine, Graduate School of Medicine, University of Pennsylvania. J. B. Lippincott Company, Philadelphia, 1940.
- PHYSICAL DIAGNOSIS**—By William Nance Anderson, M.D., associate clinical professor of medicine, University of Southern California, School of Medicine, Los Angeles. Lea and Febiger, Philadelphia, 1940. Price, \$4.75.
- MEDICAL NURSING**—By Edgar Hull, M.D., clinical professor of medicine, Louisiana State University School of Medicine, New Orleans. F. A. Davis Company, Philadelphia, 1940. Price, \$3.50.

BOOK REVIEWS

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

Of the American Medical Association for 1939 with the Comments That Have Appeared in the JOURNAL. American Medical Association, Chicago, 1940. Price, \$1.00.

Only seven of the thirty-five reports listed in this annual collected report are of the familiar "not acceptable" or condemnatory type. Two reports announce omission of products from N.N.R., one being off the market. The remainder, far superior in bulk as well as in number, are concerned with educational and constructive considerations. This trend has been noticeable in recent years; it reflects the great predominance of the constructive over what may be called the destructive side of the Council's work of promoting rational therapeutics.

The educational reports touch three fields on which lie the front lines of present day therapeutics progress; namely, chemotherapeutics, endocrines and vitamins. Two reports on sulfapyridine deal with the status and Council acceptance of commercial brands. The articles on dilantin sodium, sobisminol mass and sobisminol solution are status reports which accompanied the descriptions of accepted brands, a type of article increasingly used by the Council. Dilantin sodium is the new drug used in the treatment of epilepsy and has been accepted by the Council with carefully stated limitations for its use; sobisminol mass and sobisminol solution are new soluble bismuth preparations for use in the treatment of syphilis.

Three "special" reports are worthy of mention.

One is the warning report on the dosages of intra-urethral injection of solutions of local anesthetics, a reaffirmative strengthening of previous Council pronouncements; one is the Council statement on manganese in the treatment of dermatologic disorders; and the third is the study of the promiscuous use of the barbiturates and their use in suicides. The present annual volume of Council reports is somewhat larger than usual and somewhat above the average issue in interest.

DR. COLWELL'S DAILY LOG FOR PHYSICIANS

A brief, simple, accurate financial record for the physician's desk. Colwell Publishing Company, Champaign, Illinois, 1940. Price, \$6.00.

Readers of this publication are familiar with the yearly announcements of Dr. Colwell's Daily Log for physicians, since reviews have appeared in these columns for several years. One can do no more than reiterate previous statements on the efficient nature of the work and the indispensable place it has made for itself in the offices of many physicians.

For the benefit of any who might not be acquainted with this volume, we will say it is a combination appointment book and bookkeeping record, with special sections provided for obstetric waiting lists, notifiable diseases, deaths, narcotic records, and social security data. A business summary sheet is included at the end of each month, and running totals may be carried from month to month, so that at the end of the year the compilation of income tax returns is surprisingly simple.

This year for the first time the publishers of the Daily Log are carrying an advertisement in the JOURNAL; it will be found on page x of the advertising section. We recommend the work unreservedly for the busy general practitioner who desires a complete, systematic, time-saving device for the maintenance of his office records.

D. K.

A MANUAL OF OTOTOLOGY, RHINOLOGY AND LARYNGOLOGY

By Howard Charles Ballenger, M.D., assistant professor of otolaryngology, Northwestern University School of Medicine. Lea and Febiger, Philadelphia, 1940. Price, \$3.75.

This manual is apparently based on the larger and more comprehensive text, "Ballenger's Diseases of the Nose, Throat, and Ear."

The author, prompted by years of teaching experience felt the need for a concise textbook covering this subject. The manual includes the anatomy, etiology, symptoms and diagnosis, and emphasizes the more generally accepted treatment. It omits theories, questionable treatment and surgical technic. The book is well written, descriptive and well illustrated.

The reviewer feels that this condensation of material provides a practical knowledge of the subject which will meet the needs of the undergraduate and the general physician, rather than the specialist in this field.

H. I. M.

MANAGEMENT OF OBSTETRIC DIFFICULTIES

By Paul Titus, M.D., obstetrician and gynecologist to the St. Margaret Memorial Hospital, Pittsburgh, Pennsylvania. Second edition. The C. V. Mosby Company, St. Louis, 1940. Price, \$10.00.

In this second edition Dr Titus presents a comprehensive discussion of the diagnosis and treatment of the common, as well as the unusual, obstetric complications and emergencies. In general the text differs little from the first edition. Although no new chapters have been added many chapters have been revised and enlarged and the subject material brought up to date.

The first chapters include a discussion of the causative factors and the treatment of sterility. These chapters are well written and the operative procedures recommended in the diagnosis and treatment of sterility are illustrated. The chapter on minor complications of pregnancy contains a discussion of the complaints which commonly occur, such as skin diseases, pelvic joint relaxation, digestive disturbances and varicose veins. One chapter is devoted to the general surgical complications of pregnancy. Abortion and premature labor, ectopic pregnancy,

placenta previa, premature separation of the normally implanted placenta, and the toxemias of early and late pregnancy are adequately discussed.

The section on complications of labor describes the various types of dystocia and the management of these complications. The indications for the various obstetric operative procedures, including the induction of labor, the use of forceps, version and breech extraction, and cesarean section are well presented. Chapters dealing with complications of the puerperium, such as the management of postpartum hemorrhage and the treatment of puerperal infection, should prove a valuable practical guide to the physician.

Maternal morbidity or mortality is usually preceded by one or more of the complications of pregnancy. Serious study of this text should enable the physician to prevent, or early to detect and properly treat these emergencies and complications associated with pregnancy.

A. W. B.

THE 1939 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY

Edited by Joseph B. DeLee, M.D., and J. P. Greenhill, M.D. The Year Book Publishers, Chicago, 1940. Price \$2.50.

This book of 736 pages contains the cream of recent obstetric and gynecologic literature of American as well as foreign sources. Edited by two leading authorities, who have interspersed their personal remarks, this volume should prove most valuable for the general physician as well as the specialist.

H. E. K.

OBESITY AND LEANNESS

By Hugo R. Rony, M.D., formerly associate in medicine and chief of endocrine clinic, Northwestern University School of Medicine. Lea and Febiger, Philadelphia, 1940. Price, \$3.75.

This is a much needed treatise on a problem frequently confronting the modern physician. Only recently has medicine recognized the association of obesity and leanness with the endocrine glands, intermediary metabolism, genetics, etc. The author has capably confined the text to fact, and all questionable hypotheses have been left open to the future.

The volume is divided into three parts. Part one is devoted to a synopsis of the physiology of fat and fat tissue, metabolism and transport of fat. Part two deals with the pathogenesis of obesity and leanness. Included here is an evaluation of the relations of caloric intake, endocrine dyscrasias, nervous system, intermediary metabolism and heredity. Part three presents the clinical aspects of obesity and leanness, and covers the pathology, diagnosis and therapy of both clinical conditions.

It is a splendid presentation of a timely problem.

J. W. C.

CLINICAL HEART DISEASE

By Samuel A. Levine, M.D., assistant professor of medicine, Harvard Medical School. Second edition, revised and reset. W. B. Saunders Company, Philadelphia, 1940. Price, \$6.00.

This is the second edition of a text which is replete with valuable notes on diagnosis, prognosis and treatment of heart disease. It is individualistic and expresses the author's views, which are nationally recognized. The text has been written for the general practitioner, who will find ready reference and practical suggestions in its 500 pages.

The twenty-one chapters discuss separately all the pathologic manifestations of the common cardiac diseases, including rheumatic fever, bacterial endocarditis, angina pectoris, coronary thrombosis, congenital heart disease, thyroid heart, functional heart, cardiovascular emergencies, etc. The author has included an interesting chapter on the medicolegal aspects of heart disease, particularly with respect to trauma. A thorough discussion of electrocardiography, the new technic of taking the electrocardiogram, and the use of the recently recommended change of nomenclature completes the text.

Clarity, readability, and excellent judgment make this text an important one for the general practitioner.

J. W. C.

INTRODUCTION TO MEDICINE

By Don C. Sutton, M.D., associate professor of medicine, Northwestern University School of Medicine. The C. V. Mosby Company, St. Louis, 1940. Price, \$3.25.

It is difficult to put the essentials and nothing but the essentials of medicine into one small volume, and do it in such a way that it is attractive and intelligible to non-medical persons.

Dr. Sutton has accomplished this feat. In some six hundred pages an up-to-date brief account is given of the phases of medicine with which nurses should be familiar. The English is simple and lucid, the book is beautifully illustrated, and the modern point of view of medicine has been especially stressed.

The reviewer feels that the book is excellently suited as a textbook for nurses, and it can be recommended to other lay persons seeking accurate information on the subject of medicine.

D. J. G.

TWELVE AGAINST ALCOHOL

By Herbert Ludwig Nossen, M.D., New York. Harrison-Hilton Books, 420 Madison Avenue, New York, 1940. Price, \$2.50.

The successful ambulatory treatment of dipomania by means of frequent office conferences over long periods of time is the theme of this book, the

bulk of which is given over to twelve highly sensational "confessional" type stories by alcoholic individuals, ten of whom believe they have been cured.

The stories, because the book is admittedly for lay consumption, take on the nature of testimonials for the author's method, a method so vaguely described that it cannot be adequately evaluated. The book makes extremely interesting and exciting reading, but is not of scientific value.

R. C. D.

PSYCHIATRY FOR NURSES

By Louis J. Karnosh, M.D., associate clinical professor of nervous diseases, School of Medicine, Western Reserve University; and Edith Gage, R.N. The C. V. Mosby Company, St. Louis, 1940. Price, \$2.75.

Although of standard pattern this is by far the best of the recent crop of books on psychiatry for nurses and can be recommended to both student and graduate.

Early chapters are devoted to such matters as structure of personality, mental mechanisms and etiology, while the closing chapters discuss the general management of mental cases, the specific requirements for medication, physiotherapy, shock therapy and occupational therapy. A useful chapter on such legal aspects as commitment, guardianship, testamentary capacity and legal rights has been added.

All the psychoses and neuroses are adequately described, but emphasis has been placed on the most frequently encountered conditions. Illustrative case histories and pictures of typical cases are used freely to augment the descriptive material.

R. C. D.

LIQUOR, THE SERVANT OF MAN

By Walton Hall Smith and Ferdinand C. Helwig, M.D. Little, Brown and Company, Boston, 1940. Price, \$2.00.

This volume has been written in a popular style, making it readily readable and understandable to the average layman. While the authors have, without doubt, attempted to approach their problem without bias or prejudice, one cannot fail to be impressed by the fact that some conclusions which they draw are generally unaccepted in current medical literature.

Exception may be taken to the statement that at autopsy "There has been found no evidence that prolonged and copious use of beverage alcohol causes any disease." Elsewhere, they state, "There is no indication that liquor, taken by an adult in normal health, does any bodily harm." Their conclusion that alcohol is not habit-forming and their deduction that alcohol is not the cause of delirium tremens, will distinctly surprise the average reader.

However, in general, the volume reflects careful research and study, and merits careful reading.

R. R. S.





